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(U.S.) Environmental Protection Agency, Annapolis, MD

Aug 89

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August 1989

CHESAPEAKE BAY BASIN MONITORING PROGRAM ATLAS

Volume I

Water Quality and Other Physiochemical Monitoring Programs

Chesapeake
Bay
Program

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The Monitoring Program Atlas provides an overview of current long-term environmental monitoring programs in the Chesapeake Bay Basin. The Atlas covers a wide scope of program types, ranging from water quality, living resources, toxics, and physical processes to air quality, acid deposition and climate monitoring programs. The two-volume publication is intended to facilitate coordination and integration of environmental monitoring programs and to encourage the collection of comparable monitoring data basinwide.

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CHESAPEAKE BAY BASIN MONITORING PROGRAM ATLAS

Volume I

Water Quality and Other Physiochemical Monitoring Programs

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and

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Annapolis, Maryland
August 1989

1.a

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INTRODUCTION

The Chesapeake Bay Basin Monitoring Program Atlas was compiled by staff from the EPA Chesapeake Bay Liaison Office at the request of the Chesapeake Bay Program's Monitoring Subcommittee. The Atlas builds upon the initial effort of the Monitoring Subcommittee to bring together descriptions of ongoing monitoring programs. That collection was published as an appendix to the 1985 State of the Chesapeake Bay Report.

The objective of the Chesapeake Bay Basin Monitoring Program Atlas is to provide a source of information under one cover, describing current long-term environmental monitoring programs in the Chesapeake Bay basin. Its structure reflects the interests of program coordinators, managers and researchers in the Bay basin states but readers from any organization should find it informative. We hope that its publication will result in increased coordination and integration of environmental monitoing programs between jurisdictions and across various areas of concern, and ultimately encourage the collection of comparable monitoring data basinwide.

For the purposes of the Atlas, we have defined "long-term monitoring" as any program or research study involving routine data collection which will be continued into the foreseeable future. Every attempt has been made to produce a comprehensive overview of these programs. Information is included from the entire Bay basin and covers a wide scope of program types, ranging from water quality, living resources, toxics, and physical processes, to air quality, acid deposition and climate monitoring programs. It is important to note that this document is meant to provide an overview. All readers are encouraged to contact the listed individuals or agencies for more in-depth information on specific programs.

USING THE ATLAS

ORGANIZATION

The Chesapeake Bay Basin Monitoring Program Atlas is organized by six major headings, each representing a broad category of related programs. These headings are Water Quality, Biological and Living Resources, Toxics, Radiological, Ecosystem Processes, and Physical Processes. Within the major headings are subheadings further specifying and grouping the types of programs. Under these subheadings, programs are listed in an order which roughly corresponds to their geographic location; New York programs are typically first, followed by Pennsylvania, Maryland, Delaware, the District of Columbia, Virginia, and West Virginia respectively.

There is no cross-referencing of programs within the Atlas. For example when an individual water quality monitoring program includes, but does not primarily consist of, toxics monitoring of the water column, it can be found under Water Quality and not under Toxics. Likewise, nonpoint source programs often include collection of precipitation and other meteorological data, but they will be listed only once under Water Quality. However, utility-sponsored monitoring programs are listed separately under each grouping since they often cover a vast array of monitoring types.

CONTENT

For each program listed, there is a 1-2 page narrative description which includes a general account of the program, its objectives, listings of the agencies involved and the parameters measured, a brief enumeration of sampling techniques and frequencies, and mention of coordination efforts with other monitoring programs. More specific information on each section of the narrative program description is laid out on page xiv. If a program has additional stations outside the Chesapeake Bay watershed, only those stations within the Bay basin are included in the Atlas. An outline of the drainage basin within the context of its surrounding states is pictured in Figure 1.

Descriptions are accompanied by a station listing and map where appropriate. Station listings include specific information about the location of each site within the Bay drainage basin. The "CBP segment" refers to the Chesapeake Bay Program's segmentation scheme as illustrated in Figure 2 and further detailed on page xvii. The river basins listed are shown in Figure 3. Sub-basin notations correspond to the USGS Hydrologic Unit designations which are mapped out in Figure 4 and described on page xx.

All information reflects program operation in the most recently available year. Readers are encouraged to contact the listed individuals or agencies for information on historical parameters, stations, methodologies and other elements of the program.

FUTURE UPDATES

This Atlas will be updated on a biennial basis, with the first update scheduled for 1991. An initial supplement to the Atlas will be published in 1990. Any suggestions for changes or information about additional programs should be sent to the attention of:

Monitoring Coordinator
U.S. Environmental Protection Agency
Chesapeake Bay Liaison Office
410 Severn Avenue
Annapolis, Maryland 21403
(301) 266-6873

PROGRAM DESCRIPTION CONTENT

PROGRAM TITLE:	Official program title indicating type of monitoring program.
PROGRAM DESCRIPTION:	Concise description of the program including scope, number of stations, and temporal and spatial coverage.
PROGRAM OBJECTIVES:	Description of the overall short- and long-term objectives of the program.
DATE INITIATED:	Month (if known) and year monitoring began.
COORDINATING AGENCY:	Principal agency responsible for technical and administrative program coordination.
FUNDING AGENCIES:	Listing of all funding agencies.
PARTICIPATING AGENCIES:	Listing of all agencies, institutions and laboratories participating in coordination, administrative, or technical aspects of the program.
INVESTIGATORS:	Principal technical and administrative contacts.
PARAMETERS:	List of physical, chemical and biological parameters measured, sampled, analyzed and calculated in the field and/or laboratory.
STATIONS:	Table including the following information: station name; latitudinal and longitudinal coordinates in degrees, minutes and seconds; CBP segment; basin; USGS sub-basin name, USGS hydrological unit code designation; and a five to seven word description of the station's location. (A map of plotted station locations is included as a figure accompanying the narrative program description. If no defined stations are sampled, a general map outlining areas sampled is included.)
SAMPLE COLLECTION:	Concise description of sample collection protocol and analysis techniques including brief descriptions of the identification procedures for biological/living resource programs.
PROGRAM INTEGRATION:	Citation of other programs which include these data in their analyses or larger monitoring efforts to which this program belongs.

STATES IN THE CHESAPEAKE BAY WATERSHED

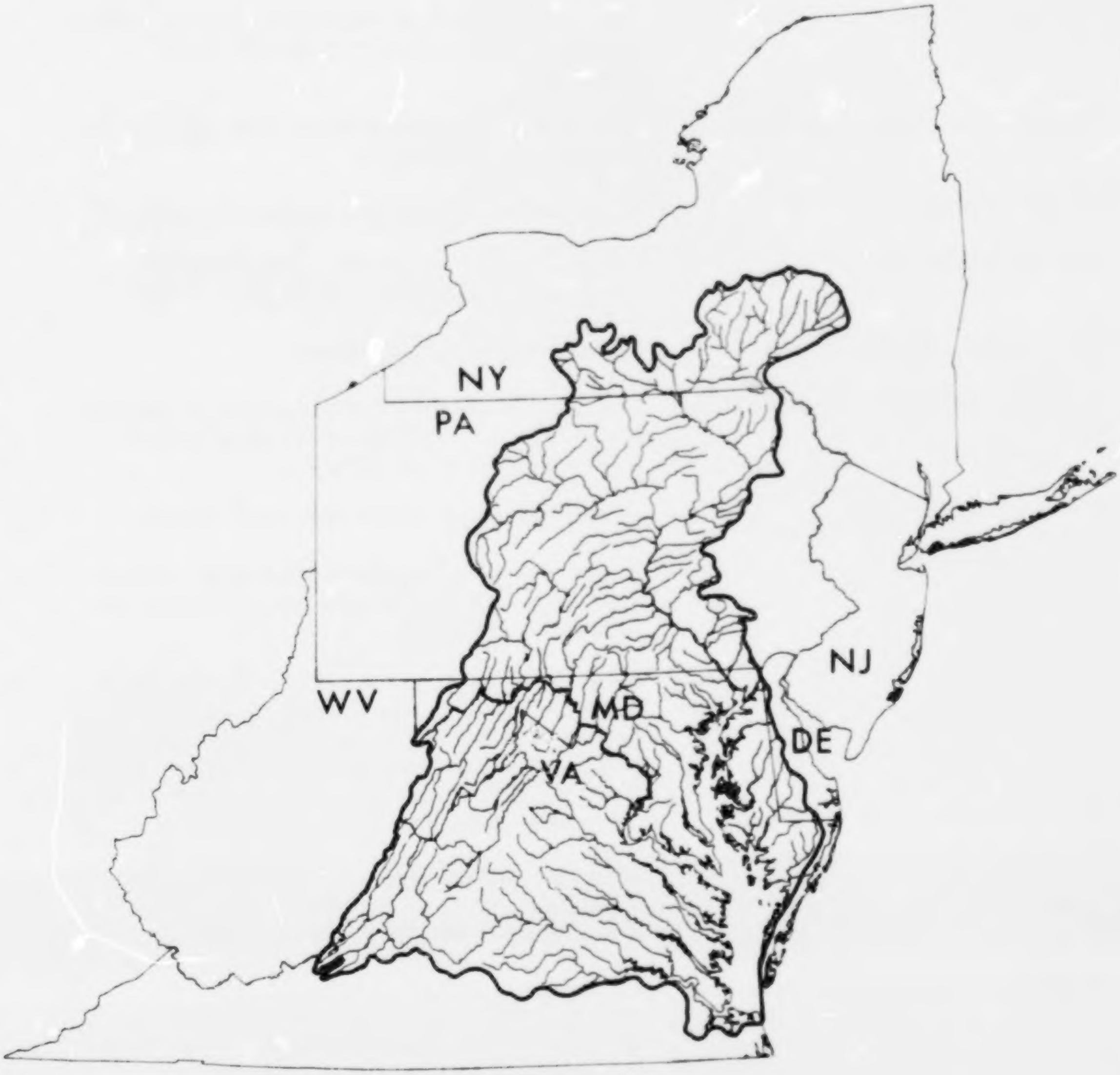

Figure 1.

CHESAPEAKE BAY PROGRAM BASIN SEGMENTS

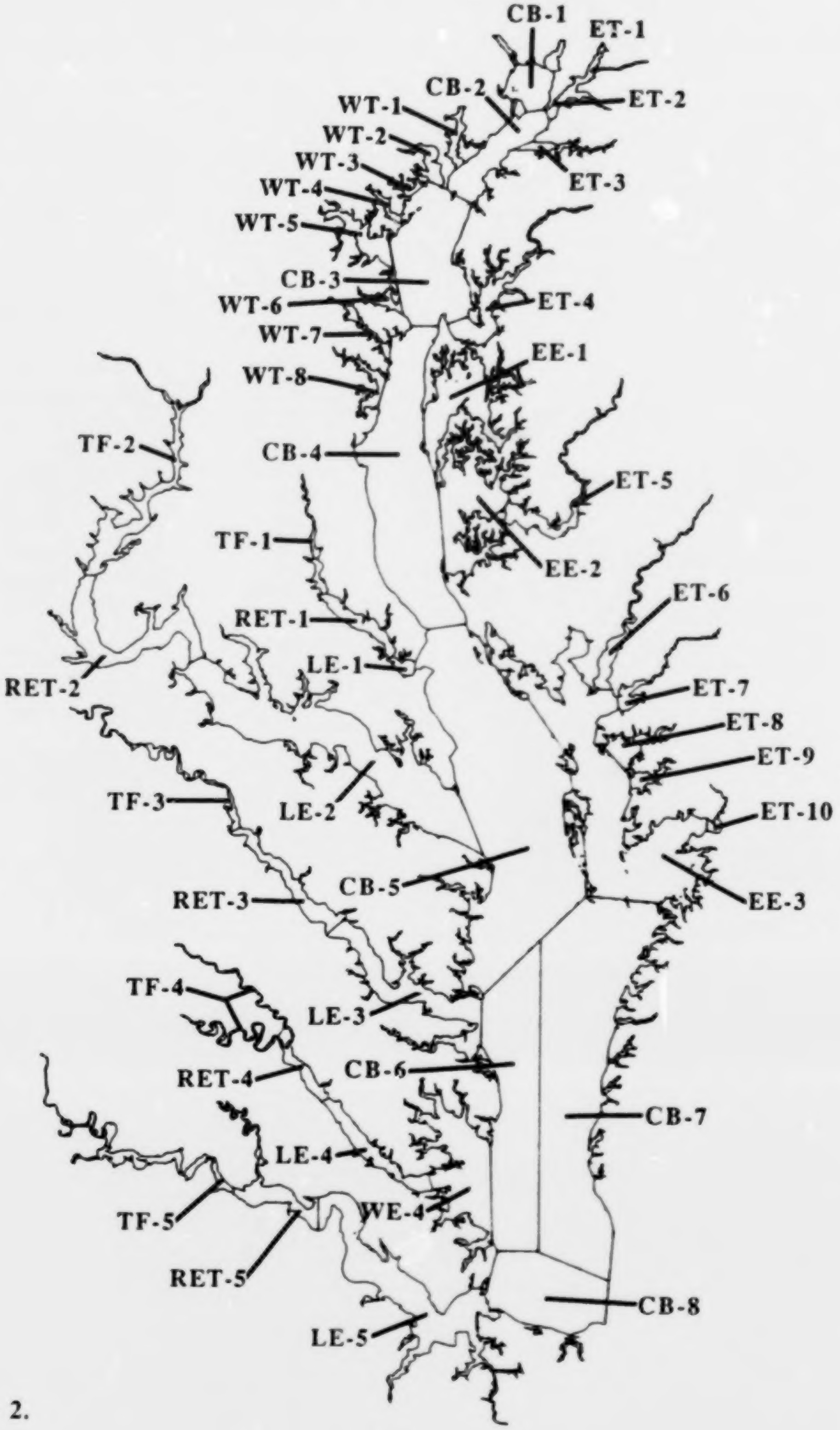

Figure 2.

CHESAPEAKE BAY PROGRAM
BASIN SEGMENT DESCRIPTIONS

Segment	
CB-1	Northern Chesapeake Bay
CB-2	Upper Chesapeake Bay
CB-3	Upper Central Chesapeake Bay
CB-4	Middle Central Chesapeake Bay
CB-5	Lower Chesapeake Bay
CB-6	Western Lower Chesapeake Bay
CB-7	Eastern Lower Chesapeake Bay
CB-8	Mouth of the Chesapeake Bay
WT-1	Bush River
WT-2	Gunpowder River
WT-3	Middle River
WT-4	Back River
WT-5	Patapsco River
WT-6	Magothy River
WT-7	Severn River
WT-8	South/Rhode/West rivers
TF-1	Upper Patuxent River
RET-1	Middle Patuxent River
LE-1	Lower Patuxent River
TF-2	Upper Potomac River
RET-2	Middle Potomac River
LE-2	Lower Potomac River
TF-3	Upper Rappahannock River
RET-3	Middle Rappahannock River
LE-3	Lower Rappahannock River
TF-4	Upper York River
RET-4	Middle York River
LE-4	Lower York River
WE-4	Mobjack Bay
TF-5	Upper James River
RET-5	Middle James River
LE-5	Lower James River
ET-1	Northeast River
ET-2	Elk/Bohemia River
ET-3	Sassafras River
ET-4	Chester River
ET-5	Choptank River
ET-6	Nanticoke River
ET-7	Wicomico River
ET-8	Manokin River
ET-9	Big Annemessex River
ET-10	Pocomoke River
EE-1	Eastern Chesapeake Bay
EE-2	Lower Choptank River
EE-3	Tangier Sound
AFL	Above the fall line
BFL	Below the fall line

CHESAPEAKE BAY RIVER BASINS

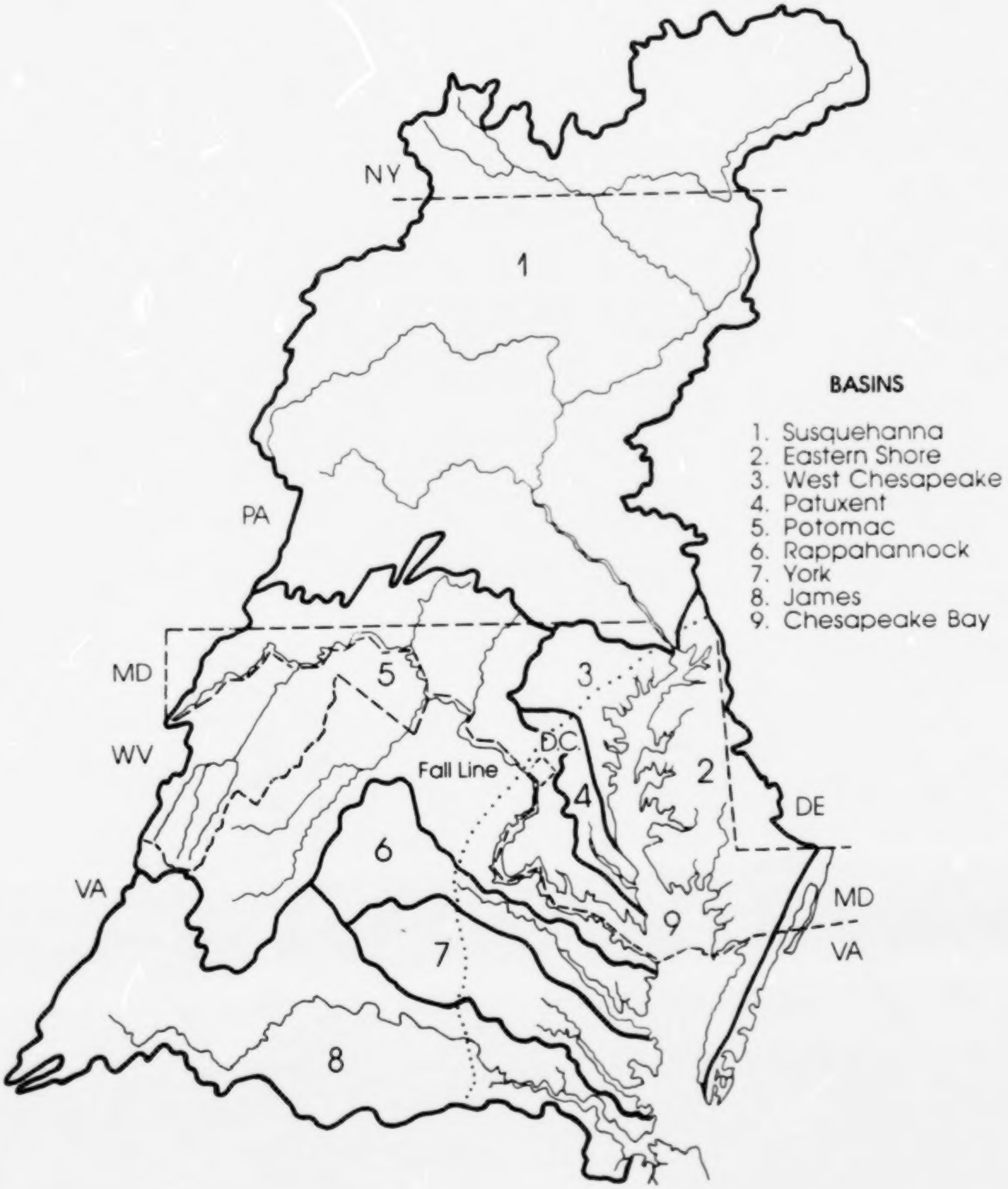

Figure 3.

U.S. GEOLOGICAL SURVEY HYDROLOGIC UNIT CODES

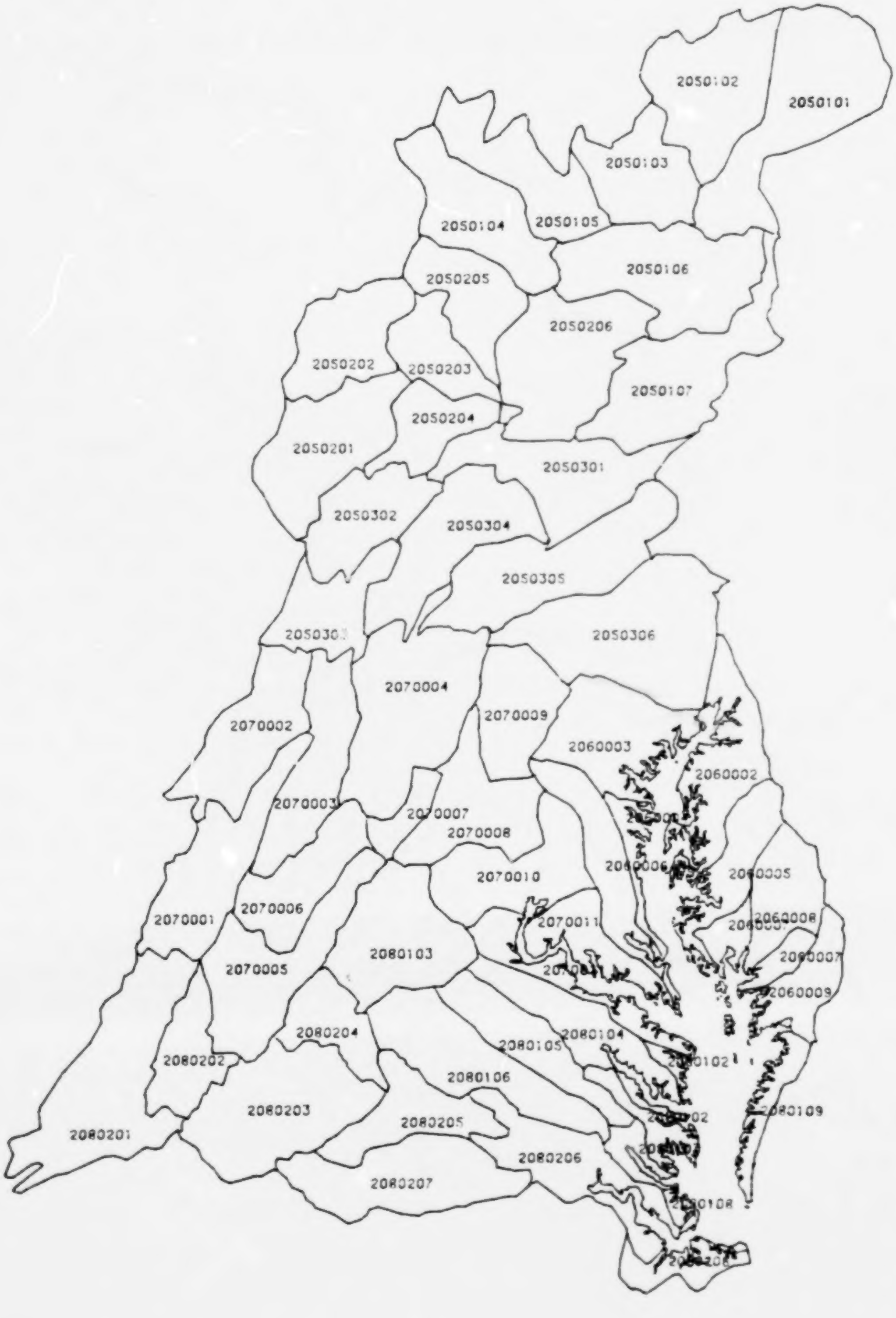

Figure 4.

USGS HYDROLOGIC UNIT CODE DESCRIPTIONS

02050101	Upper Susquehanna
02050102	Chenango
02050103	Wego-Wappasening
02050104	Tioga
02050105	Chemung
02050106	Upper Susquehanna-Tunkhannock
02050107	Upper Susquehanna-Lackawanna
02050201	Upper West Branch Susquehanna
02050202	Sinnemahoning
02050203	Middle West Branch Susquehanna
02050204	Bald Eagle Creek
02050205	Pine Creek
02050206	Lower West Branch Susquehanna
02050301	Lower Susquehanna-Penns
02050302	Upper Juniata
02050305	Lower Susquehanna-Swatara
02050306	Lower Susquehanna
02060001	Upper Chesapeake
02060002	Chester-Sassafras
02060003	Gunpowder-Patapsco
02060004	Severn
02060005	Choptank
02060006	Patuxent
02060007	Blackwater-Wicomico
02060008	Nanticoke
02060009	Pocomoke
02060010	Chincoteague
02070001	South Branch Potomac
02070002	North Branch Potomac
02070003	Cacapon-Town
02070004	Conococheague-Opequon
02070005	South Fork Shenandoah
02070006	North Fork Shenandoah
02070007	Shenandoah
02070008	Middle Potomac-Catoctin
02070009	Monocacy
02070010	Middle Potomac-Anacostia-Occoquan
02070011	Lower Potomac
02080101	Lower Chesapeake Bay
02080102	Great Wicomico-Piankatank
02080103	Rapidan-Upper Rappahannock
02080104	Lower Rappahannock
02080105	Mattaponi
02080106	Pamunkey
02080107	York
02080108	Lynnhaven-Poquoson
02080109	Western Lower Delmar
02080110	Eastern Lower Delmar
02080201	Upper James
02080202	Maury
02080203	Middle James-Buffalo
02080204	Rivanna
02080205	Middle James-Willis
02080206	Lower James
02080207	Appomattox
02080208	Hampton Roads

MARYLAND CHESAPEAKE BAY WATER QUALITY MONITORING PROGRAM: MAINSTEM CHEMICAL/PHYSICAL COMPONENT

PROGRAM DESCRIPTION: The Maryland Mainstem Component consists of a 22 station network which is sampled 20 times per year. In addition to providing a long-term record of water quality trends, the program is designed to provide data to annually characterize the Chesapeake Bay. The Maryland Department of the Environment coordinates the technical program with the complimentary mainstem program in Virginia through the EPA Chesapeake Bay Liaison Office.

PROGRAM OBJECTIVES: To characterize present conditions, detect long-term trends in water quality responses to management actions and increase understanding of water quality in relationships between habitat, ecosystem processes, and living resources.

DATE INITIATED: June 1984

COORDINATING AGENCY:

Maryland Department of the Environment
Water Management Administration
Chesapeake Bay and Special Projects Program
2500 Broening Highway
Baltimore, Maryland 21224

FUNDING AGENCIES:

U.S. EPA Chesapeake Bay Liaison Office
Maryland Department of the Environment

PARTICIPATING AGENCIES:

Maryland Department of the Environment (MDE)
University of Maryland Chesapeake Biological Laboratory (CBL)
U.S. EPA Chesapeake Bay Liaison Office (CBLO)

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Program Coordinator	Robert Magnien	MDE
EPA Project Officer	Richard Batiuk	CBLO
Field Sampling Operations	Morris Hennessey	MDE
Laboratory Analysis	Carl Zimmerman	CBL
Data Management	Pauline A. Vaas	MDE

PARAMETERS:

Temperature
Dissolved Oxygen
Specific Conductivity
Salinity*
pH
Secchi Depth
Total Nitrogen*
Total Dissolved Nitrogen
Particulate Nitrogen
Dissolved Organic Nitrogen*
Nitrate*
Nitrite
Nitrate + Nitrite
Ammonium
Total Phosphorus*
Total Dissolved Phosphorus
Particulate Phosphorus
Orthophosphate

Dissolved Organic Phosphorus*
Total Organic Carbon*
Dissolved Organic Carbon
Particulate Organic Carbon
Dissolved Silica

Total Suspended Solids
Chlorophyll *a**
Phaeophytin*

* Calculated from directly measured parameters.

STATIONS: There are 22 stations located in the mainstem of the Chesapeake Bay from the Susquehanna Flats to the Virginia state line off the mouth of the Potomac River.

SAMPLE COLLECTION: Sample collection is conducted 20 times per year -- once a month between November and February, and twice a month between March and October. Sampling times are coordinated with Virginia's mainstem sampling program, except when weather conditions prohibit the sampling of certain stations on schedule.

At each station the water column is profiled for temperature, conductivity, dissolved oxygen and pH at 0.5 meters, 1 meter, 2 meters and 3 meters. Thereafter, profiles will be taken at a minimum of 2 meter intervals and at a depth that is closest to 1 meter above the bottom. If the change in D.O. exceeds 1 mg/l or if the change in conductivity equals or exceeds 1,000 micro mhos/cm over any of the 2 meter intervals, profiles will be taken at 1 meter intervals between these two readings.

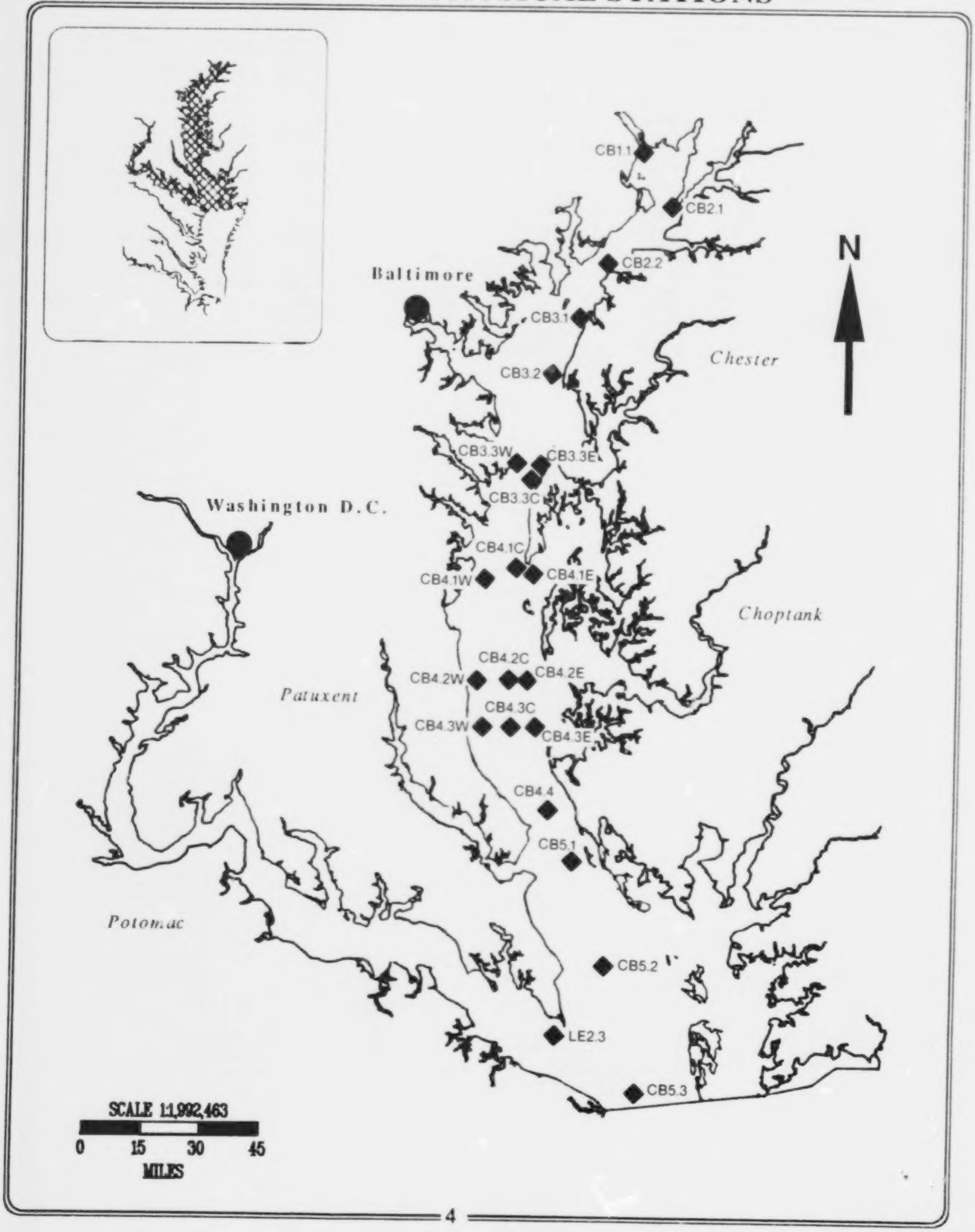
Depth and secchi depth are also recorded. Water column samples are collected with a submersible pump. At stations where stratification occurs, samples are collected at 0.5 meters below the surface, 1.5-2.5 meters above and below the calculated upper and lower limits of the pycnocline respectively, and 1 meter above the bottom. At stations where no stratification is observed, water column samples are collected 0.5 meters below the surface, 1 meter above the bottom, and at 1/3 and 2/3 the distance between the surface and bottom sample depths. At designated stations (CB1.1 and CB2.1) which have a depth of less than 6 meters and no indications of stratification, water column samples are only collected at 0.5 meters below the surface and 1 meter above the bottom.

PROGRAM INTEGRATION: Sampling cruises are coordinated between the Maryland and Virginia programs with overlapping sampling stations located at the states' boundary off of the Potomac River (CB5.3). A quarterly field split sample program between the Maryland and Virginia mainstem and tidal tributary monitoring program laboratories has been established. Selected mainstem stations are also sampled regularly for phytoplankton and zooplankton as integrated components of Maryland's Chesapeake Bay Water Quality Monitoring Program.

MARYLAND CHESAPEAKE BAY MAINSTEM WATER QUALITY MONITORING PROGRAM: MAINSTEM CHEMICAL/PHYSICAL STATIONS

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
MCB1.1	39 32 48	76 04 54	CB-1	CHESBAY	UPPER CHESAPEAKE BAY	2060001	MOUTH OF SUSQUEHANNA RIVER
MCB2.1	39 26 24	76 01 30	CB-2	CHESBAY	UPPER CHESAPEAKE BAY	2060001	SOUTHWEST OF TURKEY POINT
MCB2.2	39 20 54	76 10 30	CB-2	CHESBAY	UPPER CHESAPEAKE BAY	2060001	WEST OF STILL POND NEAR BUOY R
MCB3.1	39 15 00	76 14 24	CB-3	CHESBAY	UPPER CHESAPEAKE BAY	2060001	SE OF GUNPOWDER NECK BTN BS 24A
MCB3.2	39 09 54	76 18 30	CB-3	CHESBAY	UPPER CHESAPEAKE BAY	2060001	NW OF SWAN PT. NEAR BUOY R10
MCB3.3C	38 59 45	76 21 36	CB-4	CHESBAY	UPPER CHESAPEAKE BAY	2060001	NORTH OF BAY BRIDGE
MCB3.3E	39 00 12	76 20 48	CB-4	CHESBAY	UPPER CHESAPEAKE BAY	2060001	NORTHEAST OF BAY BRIDGE
MCB3.3W	39 00 12	76 23 18	CB-4	CHESBAY	UPPER CHESAPEAKE BAY	2060001	NORTHWEST OF BAY BRIDGE
MCB4.1C	38 49 36	76 24 00	CB-4	CHESBAY	UPPER CHESAPEAKE BAY	2060001	SOUTHWEST OF KENT POINT
MCB4.1E	38 49 00	76 22 18	EE-1	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	SOUTH OF KENT POINT
MCB4.1W	38 48 51	76 27 54	CB-4	CHESBAY	UPPER CHESAPEAKE BAY	2060001	SOUTHEAST OF HORSHOE POINT
MCB4.2C	38 38 48	76 25 06	CB-4	CHESBAY	UPPER CHESAPEAKE BAY	2060001	SW OF TILGHMAN ISLAND NEAR BUOY
MCB4.2E	38 38 42	76 24 06	CB-4	CHESBAY	UPPER CHESAPEAKE BAY	2060001	SW OF TILGHMAN ISLAND
MCB4.2W	38 38 36	76 30 06	CB-4	CHESBAY	UPPER CHESAPEAKE BAY	2060001	NORTHWEST OF PLUM POINT
MCB4.3C	38 33 24	76 26 12	CB-4	CHESBAY	UPPER CHESAPEAKE BAY	2060001	E OF DARES BEACH NEAR BUOY R 64
MCB4.3E	38 33 24	76 23 30	CB-4	CHESBAY	UPPER CHESAPEAKE BAY	2060001	MOUTH OF CHOPTANK RIVER
MCB4.3W	38 33 27	76 29 36	CB-4	CHESBAY	UPPER CHESAPEAKE BAY	2060001	EAST OF DARES BEACH
MCB4.4	38 24 48	76 20 36	CB-4	CHESBAY	UPPER CHESAPEAKE BAY	2060001	NORTHEAST OF COVE POINT
MCB5.1	38 19 06	76 17 36	CB-5	CHESBAY	UPPER CHESAPEAKE BAY	2060001	E OF CEDAR PT. EAST OF PR BUOY
MCB5.2	38 08 12	76 13 45	CB-5	CHESBAY	UPPER CHESAPEAKE BAY	2060001	E OF PT. NO POINT
MCB5.3	37 54 42	76 10 06	CB-5	CHESBAY	UPPER CHESAPEAKE BAY	2060001	NE OF SMITH PT. AT VA STATE LIN
MLE2.3	38 01 18	76 21 00	LE-2	POTOMAC	LOWER POTOMAC	2070011	MOUTH OF POTOMAC RIVER

MARYLAND CHESAPEAKE BAY WATER QUALITY MONITORING PROGRAM: MAINSTEM CHEMICAL /PHYSICAL STATIONS



VIRGINIA CHESAPEAKE BAY MAINSTEM WATER QUALITY MONITORING PROGRAM

PROGRAM DESCRIPTION: The Virginia Chesapeake Bay Mainstem Water Quality Monitoring Program is a 28 station network in which sampling is carried out 20 times per year. The program is designed to provide a long-term record of water quality trends in the Chesapeake Bay and to assist in a current assessment of the state of the Bay. The Virginia Water Control Board coordinates this program with the complementary mainstem program in Maryland through the EPA Chesapeake Bay Liaison Office.

PROGRAM OBJECTIVES: To characterize present Bay conditions, detect long-term trends in water quality responses to management actions and establish a further understanding of the relationship between water quality and living resources.

DATE INITIATED: July 1984

COORDINATING AGENCY:

Virginia Water Control Board
Chesapeake Bay Office
2111 Hamilton Street
Richmond, VA 23230

FUNDING AGENCIES:

U.S. EPA Chesapeake Bay Liaison Office
Virginia Water Control Board

PARTICIPATING AGENCIES:

Virginia Water Control Board (VWCB)
Old Dominion University (ODU)
Virginia Institute of Marine Sciences (VIMS)
U.S. EPA Chesapeake Bay Liaison Office (CBLO)

INVESTIGATORS:

Program Coordinator	Frederick Hoffman	VWCB
EPA Project Officer	Richard Batiuk	CBLO
Principal Investigator	Bruce Neilson	VIMS
Principal Investigator	Raymond Alden	ODU
Field Sampling Operations	Steve Snyder	VIMS
Field Sampling Operations	Micheal Ewing	ODU
Laboratory Analysis	Betty Salley	VIMS
Laboratory Analysis	Steve Sokolowski	ODU

PARAMETERS:

Temperature
Dissolved Oxygen
Salinity*
pH
Secchi Depth
Total Nitrogen*
Total Dissolved Nitrogen
Particulate Organic Nitrogen
Dissolved Inorganic Nitrogen*
Dissolved Organic Nitrogen*
Nitrate
Nitrite
Ammonium
Total Phosphorus*

Total Dissolved Phosphorus
Particulate Phosphorus
Dissolved Inorganic Phosphorus
Dissolved Organic Phosphorus*
Total Organic Carbon*
Dissolved Organic Carbon
Particulate Organic Carbon
Dissolved Silica
Total Suspended Solids
Chlorophyll *a*
Phaeophytin

* Calculated from directly measured parameters.

STATIONS: There are 28 stations located throughout the Virginia portion of the mainstem Chesapeake Bay, from the Maryland state line to the mouth of the Bay between Cape Charles and Cape Henry.

SAMPLE COLLECTION: Sample collection is conducted 20 times per year - once monthly between October and March and twice monthly between April and September. Sampling times are coordinated with the mainstem sampling program in Maryland, except when weather conditions prohibit certain stations from being sampled on schedule.

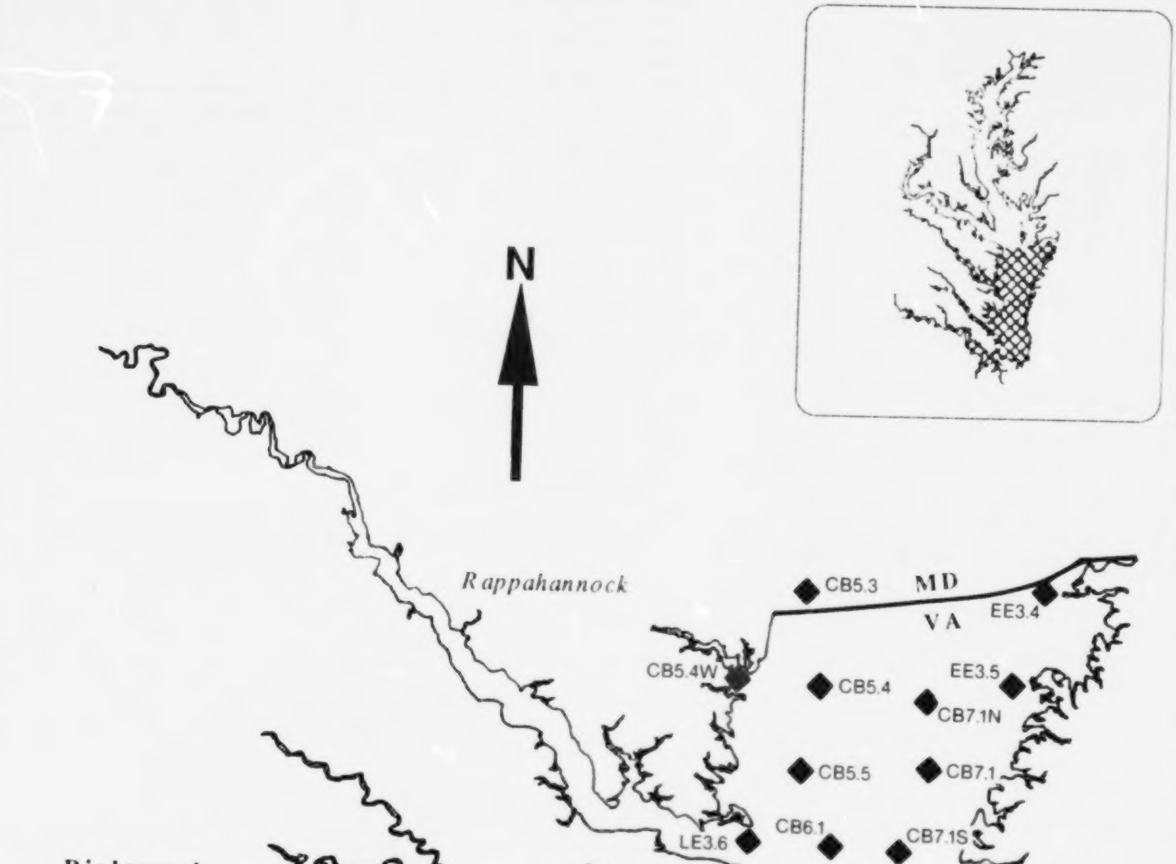
At each station, the water column is profiled for temperature, conductivity, salinity and dissolved oxygen every meter from 1 meter below the surface to 1 meter above the bottom. Measurements of pH are taken at the surface and bottom. Secchi depth is also recorded. Water column samples are collected with a submersible pump at 1 meter below the surface and 1 meter from the bottom at all stations. At designated stations (CB7.4, CB7.3, CB6.4) when stratification occurs, additional water samples are collected 1.5 meters above and below the calculated upper and lower limits of the pycnocline respectively. When no stratification is observed at these stations, additional water samples are collected at 1/3 and 2/3 the distance between the surface and bottom sample depths.

PROGRAM INTEGRATION: Sampling cruises are coordinated between the Virginia and Maryland programs with an overlap sampling station located at the state boundary off of the Potomac River (CB5.3). A quarterly field split sample program between the Maryland and Virginia mainstem and tidal tributary monitoring program laboratories has been established. Selected mainstem stations are also sampled regularly for phytoplankton, mesozooplankton, and benthic infauna as integrated components of Virginia's Chesapeake Bay Monitoring Program.

VIRGINIA CHESAPEAKE BAY MAINSTEM WATER QUALITY MONITORING STATIONS

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
1	36 59 48	76 18 12	CB-8	CHESBAY	LOWER CHESAPEAKE BAY	2080101	MOUTH OF THE JAMES RIVER
2	36 59 15	76 10 35	CB-8	CHESBAY	LOWER CHESAPEAKE BAY	2080101	BTW JAMES R MOUTH A THIMBLE SHO
3	36 56 42	76 01 30	CB-8	CHESBAY	LOWER CHESAPEAKE BAY	2080101	THIMBLE SHOALS CHANNEL AT BAY B
4	36 59 36	76 00 38	CB-8	CHESBAY	LOWER CHESAPEAKE BAY	2080101	BALTIMORE CHANNEL AT THE BAY BR
5	37 03 29	75 58 23	CB-7	CHESBAY	LOWER CHESAPEAKE BAY	2080101	NORTH CHANNEL AT THE BAY BRIDGE
6	37 07 00	76 07 32	CB-7	CHESBAY	LOWER CHESAPEAKE BAY	2080101	MAIN-STEM YORK SPIT CHANNEL
7	37 13 43	76 03 15	CB-7	CHESBAY	LOWER CHESAPEAKE BAY	2080101	LOWER EASTERN SHORE CHANNEL ARE
8	37 14 11	76 12 30	CB-6	CHESBAY	LOWER CHESAPEAKE BAY	2080101	CENTRAL BAY OFF SHORE FR YORK R
CB5.3	37 54 42	76 10 00	CB-5	CHESBAY	UPPER CHESAPEAKE BAY	2060001	CENTRAL CHESAPEAKE BAY
CB5.4	37 48 00	76 10 30	CB-5	CHESBAY	UPPER CHESAPEAKE BAY	2060001	CENTRAL CHESAPEAKE BAY
CB5.4W	37 48 48	76 17 42	CB-5	CHESBAY	UPPER CHESAPEAKE BAY	2060001	CENTRAL CHESAPEAKE BAY
CB5.5	37 41 30	76 11 24	CB-5	CHESBAY	UPPER CHESAPEAKE BAY	2060001	CENTRAL CHESAPEAKE BAY
CB6.1	37 35 18	76 09 45	CB-6	CHESBAY	LOWER CHESAPEAKE BAY	2080101	LOWER WEST CENTRAL CHESAPEAKE B
CB6.2	37 29 12	76 09 24	CB-6	CHESBAY	LOWER CHESAPEAKE BAY	2080101	LOWER WEST CENTRAL CHESAPEAKE B
CB6.3	37 24 41	76 09 36	CB-6	CHESBAY	LOWER CHESAPEAKE BAY	2080101	LOWER WEST CENTRAL CHESAPEAKE B
CB7.1	37 41 00	75 59 24	CB-7	CHESBAY	LOWER CHESAPEAKE BAY	2080101	LOWER EAST CENTRAL CHESAPEAKE B
CB7.1N	37 46 30	75 58 30	CB-7	CHESBAY	LOWER CHESAPEAKE BAY	2080101	LOWER EAST CENTRAL CHESAPEAKE B
CB7.1S	37 34 52	76 03 30	CB-7	CHESBAY	LOWER CHESAPEAKE BAY	2080101	LOWER EAST CENTRAL CHESAPEAKE B
CB7.2	37 24 41	76 04 48	CB-7	CHESBAY	LOWER CHESAPEAKE BAY	2080101	LOWER EAST CENTRAL CHESAPEAKE B
CB7.2E	37 24 41	76 01 30	CB-7	CHESBAY	LOWER CHESAPEAKE BAY	2080101	LOWER EAST CENTRAL CHESAPEAKE B
EE3.1	37 54 30	75 47 30	EE-3	CHESBAY	UPPER CHESAPEAKE BAY	2060001	TANGIER SOUNDS
EE3.2	37 47 33	75 50 37	CB-7	CHESBAY	LOWER CHESAPEAKE BAY	2080101	TANGIER SOUNDS
LE3.6	37 35 48	76 17 06	CB-6	CHESBAY	LOWER CHESAPEAKE BAY	2080101	RAPPAHANNOCK RIVER
LE3.7	37 31 50	76 18 25	LE-3	RAPPAHANNOCK	LOWER RAPPAHANNOCK	2080104	MOUTH OF PIANKATANK RIVER
WE4.1	37 18 42	76 20 48	WE-4	YORK	GREAT WICOMICO-PIANKATANK	2080102	MOBJACK BAY CENTRAL
WE4.2	37 14 30	76 23 12	WE-4	YORK	GREAT WICOMICO-PIANKATANK	2080102	MOBJACK BAY MOUTH OF YORK
WE4.3	37 10 36	76 22 24	WE-4	YORK	GREAT WICOMICO-PIANKATANK	2080102	MOBJACK BAY (POQUOSON RIVER)
WE4.4	37 06 36	76 17 36	WE-4	YORK	GREAT WICOMICO-PIANKATANK	2080102	MOBJACK BAY (BACK RIVER)

VIRGINIA CHESAPEAKE BAY MAINSTEM WATER QUALITY MONITORING STATIONS



MARYLAND CHESAPEAKE BAY WATER QUALITY MONITORING PROGRAM: TRIBUTARY CHEMICAL/PHYSICAL COMPONENT

PROGRAM DESCRIPTION: The Maryland Tributary Chemical /Physical Component consists of 57 stations covering the tidal reaches of virtually every tributary in Maryland that drains directly into the Chesapeake. All stations are sampled 12 times per year with selected stations being sampled 20 times per year. The program is designed to establish a record of water quality trends for Bay tributaries which can be compared with water quality conditions in the mainstem of the Chesapeake Bay. Existing tidal monitoring programs in the Patuxent and Potomac Rivers were brought under the umbrella of this program in 1984.

PROGRAM OBJECTIVES: To characterize water quality conditions in the Maryland tidal tributaries, create a record of long-term trends in water quality for these tributaries, and increase understanding of the relationships between habitat, ecosystem processes, and living resources.

DATE INITIATED: July 1984, Full Implementation: January 1986

COORDINATING AGENCY:
Maryland Department of the Environment
Water Management Administration
Chesapeake Bay and Special Projects Program
2500 Broening Highway
Baltimore, MD 21224

FUNDING AGENCIES:
Maryland Department of the Environment
U.S. EPA Region III

PARTICIPATING AGENCIES:
Maryland Department of the Environment (MDE)
Maryland Department of Health & Mental Hygiene Lab (MD DHMH)

INVESTIGATORS:

Principal Investigator	Robert Magnien	MDE
Project Officer	Michael Haire	MDE
Field Sampling Operations	Morris Hennessy	MDE
Laboratory Analysis	Alvin Bober	MD DHMH
Data Management	Bruce Michael	MDE

PARAMETERS:

Temperature
Dissolved Oxygen
Specific Conductivity
Salinity *
pH
Oxidation - Reduction
    Potential (Patuxent)
Secchi Depth
Total Nitrogen*
Total Kjeldahl Nitrogen (wholewater)
Total Kjeldahl Nitrogen (filtrate)
Dissolved Organic Nitrogen*
Nitrate*
Nitrite
Nitrate + Nitrite
Ammonium
Total Phosphorus
Total Dissolved Phosphorus
Particulate Phosphorus *
Particulate Nitrogen*

Orthophosphate
Dissolved Organic Phosphorus*
Total Organic Carbon
Dissolved Organic Carbon
Dissolved Silica
Total Suspended Solids
Chlorophyll *a*
Phaeophytin

* Calculated from directly measured parameters

STATIONS: There are 57 stations located throughout the tidal reaches of Maryland's Chesapeake Bay.

SAMPLE COLLECTION: Samples are collected monthly throughout the year at the following stations: WT 8.3, 8.2, 8.1, 7.1, 6.1, 4.1, 3.1, 2.1, 1.1; EE 3.0; ET 10.1, 9.1, 8.7, 7.1, 6.1, 6.2, 3.3, 2.3, 2.2, 2.1, 1.1. The remaining stations are sampled twice a month between March and October. The latter stations include all Patuxent and Eastern Shore estuary stations, Choptank and Chester River stations, and selected Potomac River stations.

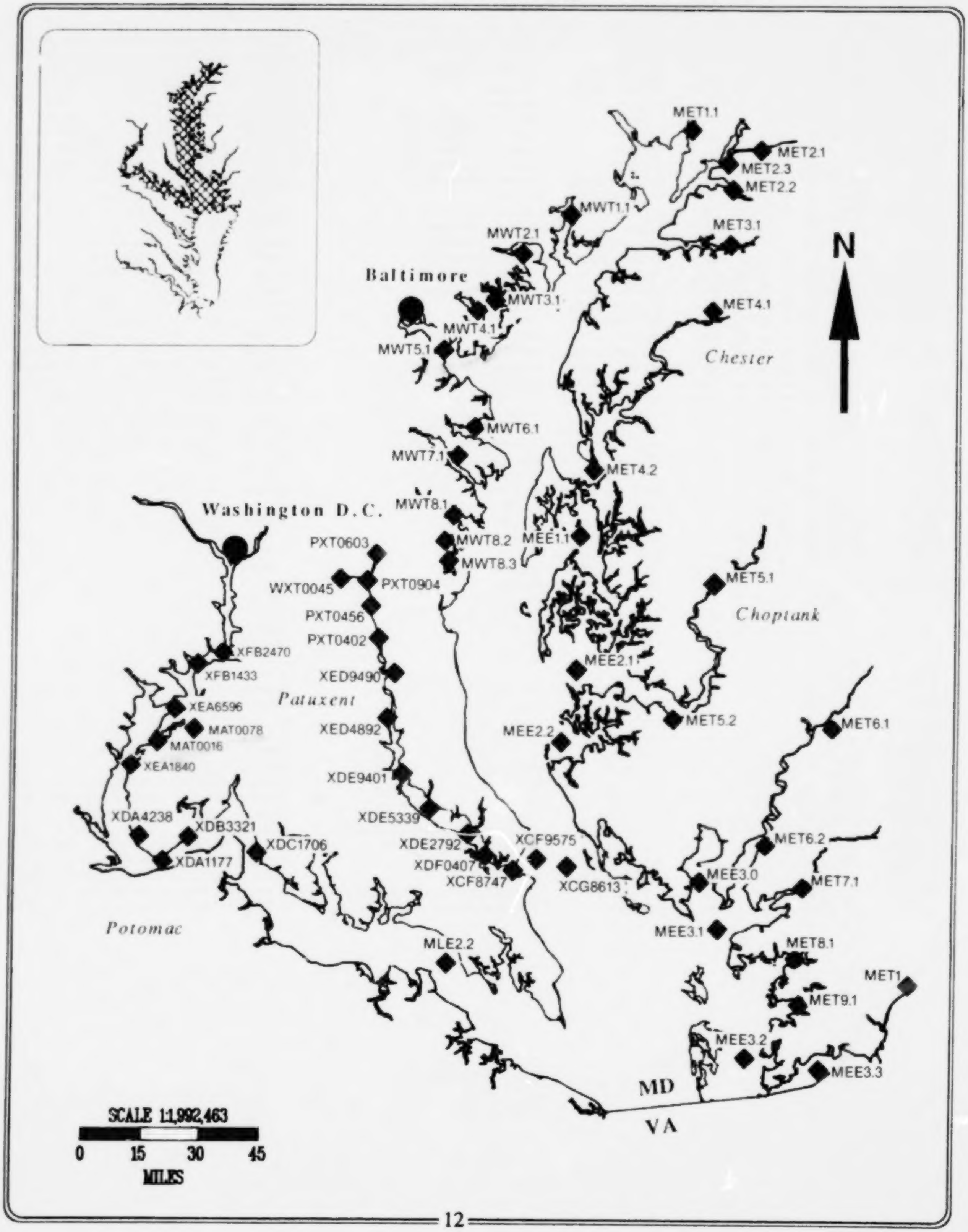
At each station, the water column is profiled for temperature, conductivity, salinity, dissolved oxygen, pH, and Oxidation-Reduction Potential at 0.5 meters, 1 meter, 2 meters, and 3 meters and at 2 meter intervals to 1 meter above the bottom. Water column samples are collected by submersible pump. At stations where two depths are sampled, the samples are taken at 0.5 meters below the surface and 1 meter above the bottom. At stations where 4 depths are sampled and where there is no discernable pycnocline, samples are collected at 0.5 meters below the surface, 1/3 and 2/3 of the distance between the surface and the bottom sample depths, and 1 meter above the bottom. At stations where a pycnocline is observed, samples are collected at 0.5 meters below the surface, at least 1.5 meters but not more than 2.5 meters, above and below the calculated upper pycnocline boundaries, and 1 meter above the bottom. If dissolved oxygen concentrations exceed 1.0 mg/l or if the change in conductivity exceeds 1000 micromhos/cm, physical profile readings are taken every 1 meter in that 2 meter depth interval.

PROGRAM INTEGRATION: A quarterly field split sample program between Maryland and Virginia mainstem and tidal tributary laboratories has been established. Selected tidal tributary stations are also sampled regularly for phytoplankton, zooplankton as integrated components of Maryland's Chesapeake Bay Monitoring Program.

MARYLAND CHESAPEAKE BAY WATER QUALITY MONITORING PROGRAM: TRIBUTARY CHEMICAL/PHYSICAL STATIONS

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
MAT0016	38 33 53	77 11 37	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	MATTAWOMAN CREEK AT BLK DAY BEA
MAT0078	38 35 18	77 07 08	BFL	POTOMAC	LOWER POTOMAC	2070011	MATTAWOMAN CREEK BRIDGE ON MD R
MEE1.1	38 53 00	76 15 00	EE-1	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	E BAY BET TILGH PT-PAR IS/N B.
MEE2.1	38 39 00	76 16 30	EE-2	EASTERN SHORE	CHOPTANK	2060005	CHOP. EMBAY MDWY BET B BNW63B A
MEE2.2	38 32 00	76 18 30	EE-2	EASTERN SHORE	CHOPTANK	2060005	LITTLE CHOPTANK R W OF RAG PT/W
MEE3.0	38 17 00	76 01 00	EE-3	CHESBAY	UPPER CHESAPEAKE BAY	2060001	HONGA R/SW OF CRABPT/NR BELL B.
MEE3.1	38 12 00	75 58 30	EE-3	CHESBAY	UPPER CHESAPEAKE BAY	2060001	N TANGIER SOUND / 100YDS. N BUO
MEE3.2	37 58 00	75 56 00	EE-3	CHESBAY	UPPER CHESAPEAKE BAY	2060001	S TANGIER SOUND / 500YDS. NNW B
MEE3.3	37 56 30	75 46 00	EE-3	CHESBAY	UPPER CHESAPEAKE BAY	2060001	POCOMOKE SOUND / ST. LINE/BUOY
MET1.1	39 34 30	75 57 30	ET-1	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	NE R AT BUOY, PIER 14 OFF CHARLE
MET10.1	38 05 00	75 34 00	BFL	EASTERN SHORE	POCOMOKE	2060009	LOWER POCOMOKE RIVER / POCOMOKE
MET2.1	39 31 30	75 49 00	BFL	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	BACK CREEK NEAR RT 213 BRG CHES
MET2.2	39 28 00	75 52 30	ET-2	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	BOHEMIA R. NR. RTE. 213 BRIDGE
MET2.3	39 30 30	75 54 00	ET-2	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	ELK RIVER AT CONF BOHEMIA R BUO
MET3.1	39 22 00	75 53 00	BFL	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	SASSAFRAS RIVER NEAR RTE. 213 B
MET4.1	39 15 30	75 55 30	BFL	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	CHESTER RIVER, CRUMPTON NR RT 2
MET4.2	38 59 30	76 13 00	ET-4	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	LO CHESTER R S OF E NECK IS, BU
MET5.1	38 48 25	75 54 44	ET-5	EASTERN SHORE	CHOPTANK	2060005	UP CHOPTANK R, DWNSTR OF CONF T
MET5.2	38 34 48	76 03 36	ET-5	EASTERN SHORE	CHOPTANK	2060005	LOWER CHOPTANK RIVER NEAR RT. 5
MET6.1	38 32 00	75 43 00	BFL	EASTERN SHORE	NANTICOKE	2060008	UPPER NANTICOKE RIVER AT SHARPT
MET6.2	38 20 00	75 53 00	ET-6	EASTERN SHORE	NANTICOKE	2060008	LOWER NANICOKE R., E OF SANDY P
MET7.1	38 16 00	75 47 30	ET-7	EASTERN SHORE	BLACKWATER-WICOMICO	2060007	LOWER WICOMICO RIVER AT WHITEHA
MET8.1	38 08 30	75 49 00	ET-8	EASTERN SHORE	POCOMOKE	2060009	MANOKIN RIVER SOUTH OF LOCUST P
MET9.1	38 03 30	75 48 30	ET-9	EASTERN SHORE	POCOMOKE	2060009	BIG ANNEM. R/NW LONPT/250Y E DA
MLE2.2	38 10 00	76 35 00	LE-2	POTOMAC	LOWER POTOMAC	2070011	POTOMAC RIVER OFF RAGGED PT/BUO
MWT1.1	39 26 00	76 14 30	WT-1	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	BUSH RIVER EAST OF GUM PT. AT F
MWT2.1	39 23 00	76 20 30	WT-2	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	GUNPOW. R. 200YDS E OLIV. PT DA
MWT3.1	39 18 00	76 24 00	WT-3	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	MIDDLE R. S OF BOWLEY PT. AT BU
MWT4.1	39 17 30	76 27 00	BFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	BACK R E OF STANSBURY PT DAY BE
MWT5.1	39 12 30	76 31 30	WT-5	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	PATAPSCO R. E OF HAWKINS PT. BU
MWT6.1	39 04 30	76 28 30	WT-6	WEST CHESAPEAKE	SEVERN	2060004	MAGOTHY R. NW OF FERRY PT BUOY
MWT7.1	39 01 00	76 30 30	BFL	WEST CHESAPEAKE	SEVERN	2060004	SEVERN R 200YDS UPSTREAM OF RT
MWT8.1	38 56 00	76 31 00	WT-8	WEST CHESAPEAKE	SEVERN	2060004	SOUTH R. S OF POPLAR PT AT DAYM
MWT8.2	38 53 00	76 32 00	WT-8	WEST CHESAPEAKE	SEVERN	2060004	RHODE R. BTWN FLAT IS. AND BIG
MWT8.3	38 51 00	76 32 00	WT-8	WEST CHESAPEAKE	SEVERN	2060004	WEST R. UPSTREAM OF DAYMARKER 6
PXT0402	38 42 36	76 42 06	TF-1	WEST CHESAPEAKE	SEVERN	2060006	PATUXENT RIVER MIDCH. AT NOTTIN
PXT0456	38 46 22	76 42 37	BFL	PATUXENT	PATUXENT	2060006	PATUXENT R. SHORE/MAIN PIER/JAC
PXT0494	38 48 37	76 42 45	BFL	PATUXENT	PATUXENT	2060006	PATUXENT RIVER MIDCH./MD RT. 4
PXT0603	38 51 21	76 41 36	BFL	PATUXENT	PATUXENT	2060006	PATUXENT RIVER MD ROUTE 50 BRID
WXT0045	38 48 51	76 45 04	BFL	PATUXENT	PATUXENT	2060006	W BR PATUXENT R/MIDC. WAT. ST/U
XCF8747	38 18 43	76 25 18	LE-1	PATUXENT	PATUXENT	2060006	PATUX. R MIDCH BET DRUMPT AND F
XCF9575	38 19 30	76 22 33	CB-5	CHESBAY	UPPER CHESAPEAKE BAY	2060001	PATUX. R MIDCH BET CEDARPT AND
XCG8613	38 18 38	76 18 42	CB-5	CHESBAY	UPPER CHESAPEAKE BAY	2060001	CHESAPEAKE BAY "PR" BUOY OFF CE
XDA1177	38 21 07	77 12 17	RET-2	POTOMAC	LOWER POTOMAC	2070011	POTOMAC MIDCH. OFF MD PT BUOY 1
XDA4238	38 24 12	77 16 10	RET-2	POTOMAC	LOWER POTOMAC	2070011	POTOMAC MIDCH. OFF SMITH PT/BUO
XDB3321	38 23 17	77 07 51	RET-2	POTOMAC	LOWER POTOMAC	2070011	POTOMAC MIDCH. OFF NANJEMOY CR/
XDC1706	38 21 45	76 59 27	RET-2	POTOMAC	LOWER POTOMAC	2070011	POTOMAC R MIDCH. AT MORGANTOWN
XDE2792	38 22 43	76 30 41	LE-1	PATUXENT	PATUXENT	2060006	PATUXENT R MIDCH 1.6KM SW PETER
XDE5339	38 25 30	76 36 07	LE-1	PATUXENT	PATUXENT	2060006	PATUXENT R MIDCH /SSW JACK BAY
XDE9401	38 29 26	76 39 52	RET-1	PATUXENT	PATUXENT	2060006	PATUXENT RIVER MIDCH/.5KM ENE L
XDF0407	38 20 26	76 29 18	LE-1	PATUXENT	PATUXENT	2060006	PATUXENT R MIDCH 1200M N PT PAT
XEA1840	38 31 47	77 15 56	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	POTOMAC MID BET POS PT A. MOSS
XEA6596	38 36 29	77 10 27	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	POTOMAC RIVER MIDCH. OFF IND AT
XED4892	38 34 54	76 40 50	TF-1	WEST CHESAPEAKE	SEVERN	2060006	PATUXENT RIVER MIDCH/SSE FR JAC
XED9490	38 39 28	76 41 05	TF-1	WEST CHESAPEAKE	SEVERN	2060006	PATUXENT RIVER MIDCH OFF WHARF/
XFB1433	38 41 26	77 06 41	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	POTOMAC RIVER MID OFF DOGUE CR/
XFB2470	38 42 23	77 02 56	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	POTOMAC R FL B. 77 OFF MD PISCA

MARYLAND CHESAPEAKE BAY WATER QUALITY MONITORING PROGRAM: TRIBUTARY CHEMICAL /PHYSICAL STATIONS



DISTRICT OF COLUMBIA WATER QUALITY MONITORING PROGRAM

PROGRAM DESCRIPTION: The District of Columbia Water Quality Monitoring Program consists of a 76 station network in which water quality is monitored in the Potomac and Anacostia rivers, the Chesapeake and Ohio Canal, the Washington ship channel and the Tidal Basin. Sampling is conducted on a monthly basis with the exception of selected CORE stations which are monitored 20 times per year. In addition to ongoing water quality monitoring, the program oversees several short-term projects and conducts an intensive survey of the District's smaller tributaries for which a different stream is chosen annually. The monitoring of the Potomac River is coordinated with the Maryland Department of the Environment and the Virginia Water Control Board in conjunction with the U.S. EPA Chesapeake Bay Program and Metropolitan Washington Council of Governments.

PROGRAM OBJECTIVES: To characterize present water quality conditions and long-term trends in water quality response to different control strategies in order to maintain the environmental integrity of District waters, protect the public from potential health hazards, and continue to use these waters as a valuable resource.

DATE INITIATED: 1979

COORDINATING AGENCY:
District of Columbia Department of Consumer and Regulatory Affairs
Environmental Control Division
Water Quality Monitoring Section
5010 Overlook Avenue, S.W.
Washington, D.C. 20032

FUNDING AGENCIES:
D.C. Department of Consumer and Regulatory Affairs
U.S. EPA Region III

PARTICIPATING AGENCIES:
D.C. Department of Consumer and Regulatory Affairs (DCDCRA)
U.S. EPA Central Regional Laboratory (CRL)

INVESTIGATORS:

Principal Investigator	Hamid Karimi	DCDCRA
Monitoring Coordinator	Sheila Besse	DCDCRA
Quality Assurance Officer	Peggy Zawodny	CRL

PARAMETERS

CORE stations:
Temperature
Dissolved Oxygen
Specific Conductivity
Salinity*
pH
Alkalinity
Secchi Depth
Total Kjeldahl Nitrogen
Nitrate
Nitrite
Ammonium
Total Phosphorus
Total Dissolved Phosphorus
Particulate Phosphorus*
Dissolved Inorganic Phosphorus

Total Organic Carbon
Dissolved Organic Carbon
Particulate Organic Carbon*
Dissolved Silica
Total Suspended Solids
Total Volatile Solids
Turbidity
Chlorophyll *a* [2]
Phaeophytin[2]
Total Coliform[3]
Biological Oxygen Demand
Total Residual Chlorine[1]
Free Chlorine[1]
Sulfate

Intercalary stations
Temperature
Dissolved Oxygen
Specific Conductivity
Salinity*
pH
Secchi Depth
Total Kjeldahl Nitrogen
Total Phosphorus
Dissolved Inorganic Phosphorus
Total Suspended Solids
Turbidity

Abbreviated stations:
Temperature
Dissolved Oxygen
Specific Conductivity
Salinity*
pH
Secchi Depth

* Calculated from directly measured parameters
[1] only at Potomac and Anacostia stations
[2] only at Potomac, Anacostia, Rock Creek and C&O Canal stations
[3] all stations except those on Anacostia

STATIONS: There are 76 stations located on the Potomac and Anacostia Rivers and other tidal and non-tidal tributaries which drain into these rivers.

SAMPLE COLLECTION: Stations are divided into three types - Abbreviated, Intercalary and CORE. Water quality samples are collected monthly throughout the year at all the Intercalary and CORE stations, with samples at selected CORE stations collected twice monthly from March through October and monthly from November through February. Only in-situ physical parameters are profiled at Abbreviated stations.

At every station, temperature, conductivity, dissolved oxygen, and pH are measured at the surface from November to March. Secchi depth is also measured. These parameters (barring Secchi depth) are profiled at 1.0 meter intervals from April through October at all stations. At the Abbreviated stations, only these physical parameters are monitored. At the Intercalary stations, these physical and selected chemical parameters are monitored in samples collected at 0.5 meters below the surface. At CORE stations, all listed chemical parameters are monitored in samples collected at 0.5 meters below the surface.

PROGRAM INTEGRATION: Selected stations are regularly sampled for phytoplankton and zooplankton as part of the District of Columbia's integrated monitoring program. A subset of these stations are also part of the Potomac Regional Monitoring Program and the Coordinated Anacostia Monitoring Program, a multijurisdictional monitoring program coordinated by the Metropolitan Washington Council of Governments. CORE stations are part of the EPA's national water quality monitoring network.

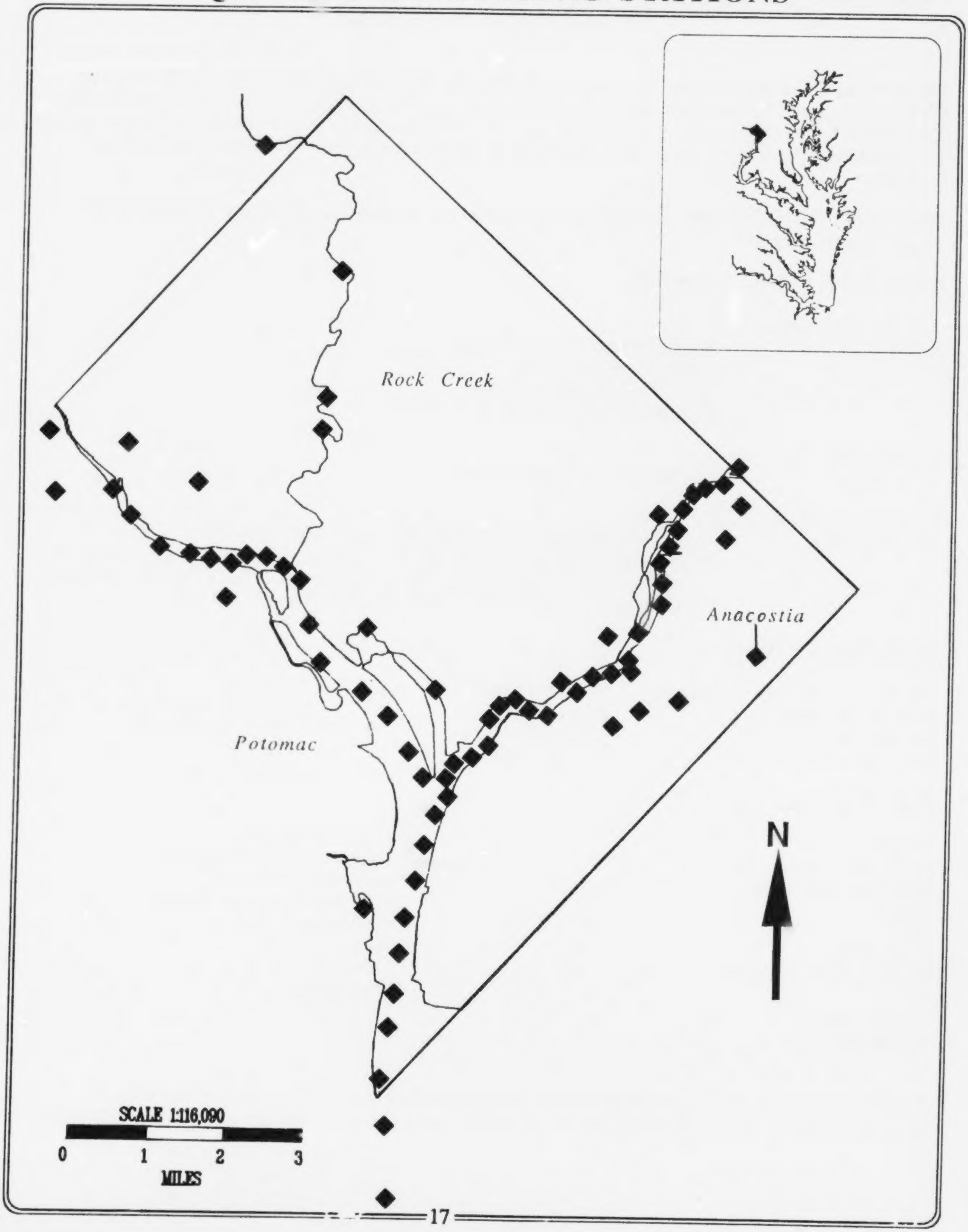
DISTRICT OF COLUMBIA WATER QUALITY MONITORING STATIONS

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
ANA01	38 55 05	76 56 31	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	NY AVE. BRIDGE/50M UPSTREAM OF
ANA02	38 54 56	76 56 44	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	AQUATIC GARDENS N/MIDDLE R BEND
ANA03	38 54 53	76 57 01	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	AQUATIC GARDENS INLET / UPSTREA
ANA04	38 54 46	76 57 12	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	ARBORETUM / 200M DOWNSTREAM OF
ANA05	38 54 33	76 57 22	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	HICKEY HILL /200M UPSTREAM OF H
ANA06	38 54 20	76 57 30	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	KINGMAN LAKE /DOWNSTREAM SIDE
ANA07	38 54 07	76 57 38	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	UPSTRM OF BENNING RD PEPCO POWE
ANA08	38 53 55	76 57 45	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	BENN RD POWER PLANT /SOUTHERN M
ANA09	38 53 42	76 57 45	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	KINGMAN ISLAND/ACROSS FROM GAZE
ANA10	38 53 27	76 57 48	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	UPSTREAM OF EAST CAPITAL STREET
ANA11	38 53 02	76 58 09	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	KINGMAN ISLAND S AT DAYMARKER #
ANA12	38 53 02	76 58 09	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	KINGMAN LAKE OUTLET /UPSTREAM S
ANA13	38 52 38	76 58 20	BFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	RAILROAD BRIDGE /50M DOWNSTREAM
ANA14	38 52 38	76 58 33	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	PENNSYLVANIA AVE. /MARINA S DOC
ANA15	38 52 33	76 58 50	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	PENNSYLVANIA AVE. S/100M DOWNST
ANA16	38 52 27	76 59 06	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	ANACOSTIA PARK POOL ACROSS FR M
ANA17	38 52 30	76 59 19	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	11TH STREET BRIDGE ON UPSTREAM
ANA18	38 52 11	76 59 34	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	NAVY YD E /200M W OF 11TH STREE
ANA19	38 52 13	76 59 49	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	NAVY YARD / ACROSS FROM EAST PI
ANA20	38 52 17	77 00 05	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	NAVY YARD W/NEXT TO W PIER
ANA21	38 52 10	77 00 18	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	100M N OF SOUTH CAPITOL STREET
ANA22	38 51 66	77 00 26	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	300M S OF SOUTH CAPITOL STREET
ANA23	38 51 47	77 00 34	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	BUZZARD PT POWER PLANT/BTW FL#3
ANA24	38 51 40	77 00 47	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	BUZZARD PT MARINA /SOUTH OF EAS
ANA25	38 51 32	77 01 02	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	GREENLEAF POINT /APPROX 100M S
ANA26	38 51 22	77 01 10	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	WASH CHANNEL /200M S OF RED AND
ANA27	38 51 10	77 01 15	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	HAINS POINT / 100M NORTH OF N #
ANA29	38 51 02	77 01 21	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	AT RED AND GREEN FLASHER/POTOMA
PMS01	38 55 04	77 06 18	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	FLETCHER'S BOATHOUSE
PMS03	38 54 40	77 06 01	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	FLETCHER'S BOATHOUSE SOUTH
PMS05	38 54 23	77 05 33	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	WINDY RUN WATERFALL
PMS07	38 54 13	77 05 03	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	SPOUT RUN
PMS08	38 54 12	77 04 47	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	THREE SISTERS ISLAND
PMS09	38 54 10	77 04 31	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	GEORGETOWN UNV. IN LINE W/ BOTH
PMS10	38 54 08	77 04 11	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	UPSTREAM OF KEY BRIDGE
PMS11	38 54 05	77 03 57	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	ROOSEVELT ISLAND WEST
PMS12	38 54 01	77 03 42	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	LARGE "G" ON CEMENT WALL
PMS13	38 53 54	77 03 29	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	SOUTH BANK OF ROCK CREEK
PMS16	38 53 17	77 03 16	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	50 METERS UPSTREAM OF MEMORIAL
PMS18	38 52 52	77 03 08	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	100M SOUTH OF CABLE CROSSING
PMS21	38 52 27	77 02 33	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	14TH STREET BRIDGE
PMS23	38 52 11	77 02 04	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	LINE BTW. GRAVELLY PT AND N COU
PMS25	38 51 47	77 01 46	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	HALFWAY BTW. NUN BOUY 4 AND 6/R
PMS27	38 51 25	77 01 35	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	HALFWAY BTW. NUN BOUY 2 AND 4/N
PMS29	38 51 01	77 01 21	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	150M DWNSTRM OF BLCK AND RED FL
PMS31	38 50 34	77 01 26	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	GEISBORO POINT SOUTH / 200M S O
PMS33	38 50 08	77 01 36	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	FOUR MILE RUN N/150M N OF BOLLI
PMS35	38 49 43	77 01 48	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	DANGERFIELD ISLAND N/IN LINE W/
PMS37	38 49 18	77 01 53	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	100M S OF NAVAL RESEARCH LAB PI
PMS39	38 48 50	77 02 03	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	BLUE PLAINS/100M WEST OF CAN #1
PMS41	38 48 23	77 02 10	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	TORPEDO FACTORY/200M W OF NUN B
PMS44	38 47 41	77 02 14	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	W. WILSON MEM. BRG./50M UPSTREA
PMS46	38 47 13	77 02 15	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	HUNTING CR N/ OPP. S END OF PKW
PMS48	38 46 46	77 02 09	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	HUNTING CR S/ 250M SW OF R #90
PMS51	38 46 12	77 01 54	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	ACROSS FROM ROSIER BLUFF /100M
PTB01	38 53 13	77 02 23	BFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	OFF CENTER OF CONSTITUTION AVE
PWC04	38 52 25	77 01 21	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	WASH. CHAN./100M W OF N SIDE OF
RCR01	38 59 11	77 03 50	AFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	ROCK CREEK/MEADOWBROOK/BEACH DR
RCR04	38 57 37	77 02 39	AFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	JOYCE ROAD IN ROCK CREEK PARK N
RCR09	38 55 42	77 02 59	AFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	ROCK CREEK AT THE ZOO
TBK01	38 55 04	77 07 15	AFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	BATTERY KEMBLE/FLETCH. BOATHS.
TC001	38 53 40	77 04 30	AFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	C&O CANAL GEORGETOWN/25YDS W OF
TC006	38 55 39	77 06 06	AFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	C&O CANAL FLETCHER'S BOATHOUSE/
TCT07	38 56 02	77 02 57	AFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	KLINGLE RD. ROCK CREEK PARK NW,
TDA01	38 55 43	77 07 20	AFL	POTOMAC	MIDDLE POTOMAC CATOCTIN	2070008	DALECARLIA/WEATHERHL. RD/UPSTR
TDU01	38 53 00	76 58 36	BFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	FORT DUPONT/RR YARD UNDER ANACO

DISTRICT OF COLUMBIA WATER QUALITY MONITORING STATIONS (Cont'd)

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
TFB01	38 55 09	77 05 00	AFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	FOUNDARY BRANCH PARK/50 YDS S O
TFC01	38 53 12	76 56 15	BFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	FORT CHAPIN/CORNER OF C ST. AND
TFD01	38 52 12	76 57 30	BFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	FORT DAVIS/PENN. AVE. AT 33RD S
TFS01	38 52 00	76 58 30	BFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	FORT STANTON/REAR OF APT 1907 G
THR01	38 54 30	76 57 45	BFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	NAT'L ARBOR., N SIDE OF BRG. ON
TNA01	38 54 36	76 56 30	BFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	NASH/ANACOSTIA AVE. N.E.
TOR01	38 49 54	77 02 28	BFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	OXON RUN/100 YDS BEL. AUDREY LN
TPB01	38 52 42	76 58 20	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	FAIRLAWN AVE. BTWN. M ST. AND M
TTX27	38 52 06	76 58 10	BFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	TEXAS AVE. AT 27TH ST. S.E.
TWB01	38 54 12	76 56 45	BFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	WATTS BRANCH/ KENILWORTH PARK S

DISTRICT OF COLUMBIA WATER QUALITY MONITORING STATIONS



VIRGINIA CHESAPEAKE BAY TIDAL TRIBUTARY WATER QUALITY MONITORING PROGRAM

PROGRAM DESCRIPTION: The Virginia Chesapeake Bay Tributary Water Quality Monitoring Program consists of 32 stations in the tidal reaches of the major Virginia western shore tributaries of the Chesapeake Bay. which are sampled 20 times per year. This program is designed to monitor water quality conditions throughout the Virginia tidewater region as part of the Virginia Chesapeake Monitoring Program.

PROGRAM OBJECTIVES: To characterize water quality conditions and long-term trends in the Virginia Bay tributaries.

DATE INITIATED: June 1984

COORDINATING AGENCY:

Virginia Water Control Board
Chesapeake Bay Office
2111 North Hamilton Street
Richmond, Virginia 23230

FUNDING AGENCY: Virginia Water Control Board

PARTICIPATING AGENCIES:

Virginia Water Control Board, Headquarter Office (VWCB)
Virginia Water Control Board, Piedmont Regional Office (VWCB) -Piedmont
Virginia Water Control Board, Tidewater Regional Office (VWCB) -Tidewater
Virginia Division of Consolidated Laboratory Services (DCLS)

INVESTIGATORS:

Coordinator/Monitoring Program	Frederick Hoffman	VWCB
Principal Investigator	Roger Everton	VWCB-Tidewater
Principal Investigator	Joseph Hassel	VWCB-Piedmont
Laboratory Analyses	Norma Roadcap	DCLS

PARAMETERS:

Temperature
Dissolved Oxygen
Specific Conductivity
Salinity
pH
Secchi Depth
Total Kjeldahl Nitrogen
Nitrite
Nitrate + Nitrite
Ammonium
Total Phosphorus
Total Dissolved Phosphorus
Particulate Phosphorus
Dissolved Inorganic Phosphorus
Total Organic Carbon
Dissolved Silica
Chlorophyll *a*
Phaeophytin

STATIONS: There are 32 stations located in the tidal reaches of Virginia's major western shore tributaries - James, York, Pamunkey and Rappahannock rivers. Station sites are selected to characterize

STATIONS: There are 32 stations located in the tidal reaches of Virginia's major western shore tributaries - James, York, Pamunkey and Rappahannock rivers. Station sites are selected to characterize the salinity and circulation regimes found in larger tributaries (tidal fresh, riverine-estuarine transition, lower estuarine) and to determine environmental conditions in smaller rivers flowing into these major tributaries.

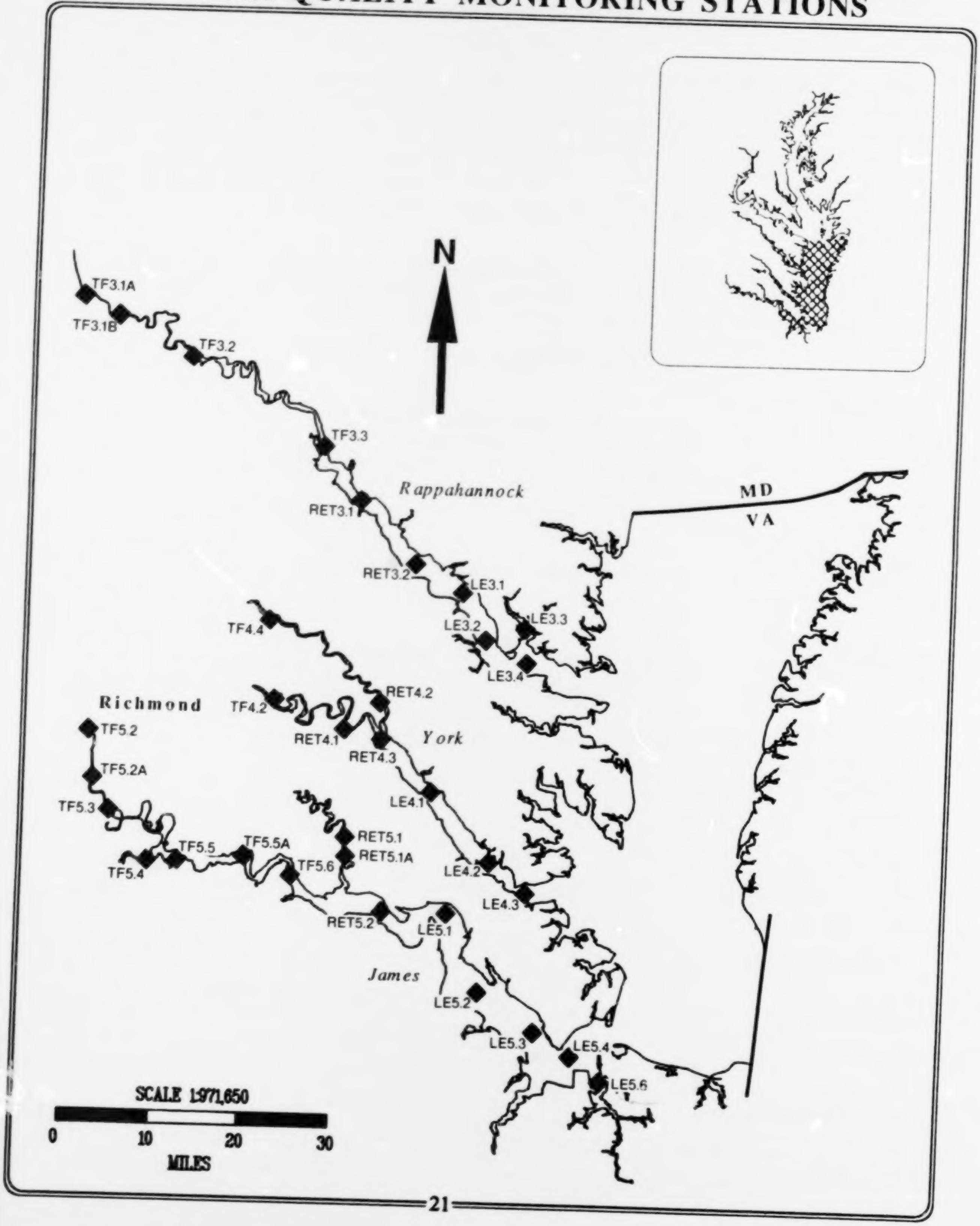
SAMPLE COLLECTION: Stations are sampled once a month between November and February and twice a month between March and October. At each station, the water column is profiled in-situ for temperature, conductivity and dissolved oxygen every 2 meters. Secchi depth and pH are also measured. In addition, water column grab samples are collected at 1 meter below the surface and 1 meter above the bottom. These samples are usually collected by submersible pump, although some may be collected with a manual sampling unit.

PROGRAM INTERGRATION: A quarterly field split sample program between theVirginia CBP participants (VIMS, DCLS, ODU, HRSD), has been established. Selected stations are also sampled regularly for phytoplankton, mesozooplankton, and benthic infauna as integrated components of Virginia's Chesapeake Bay Monitoring Program.

VIRGINIA CHESAPEAKE BAY TIDAL TRIBUTARY WATER QUALITY MONITORING STATIONS

STATION NAME (S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
LE3.1	37 45 38	76 37 16	LE-3	RAPPAHANNOCK	LOWER RAPPAHANNOCK	2080104	VIMS SLACK WATER, BUOY #11
LE3.2	37 40 13	76 33 16	LE-3	RAPPAHANNOCK	LOWER RAPPAHANNOCK	2080104	LONG PT UPSTREAM OF BUOY #R8
LE3.3	37 41 36	76 28 24	LE-3	RAPPAHANNOCK	LOWER RAPPAHANNOCK	2080104	CORROTOMAN R., BUOY #R6
LE3.4	37 38 00	76 27 48	LE-3	RAPPAHANNOCK	LOWER RAPPAHANNOCK	2080104	ORCHARD PT, VIMS SLACK WATER
LE4.1	37 25 06	76 41 36	RET-4	YORK	YORK	2080107	VIMS SLACK WATER #n44
LE4.2	37 17 30	76 33 30	LE-4	YORK	YORK	2080107	VIMS SLACK WATER #n34
LE4.3	37 14 06	76 29 06	LE-4	YORK	YORK	2080107	BETWEEN AMOCO AND SARAH CREEKS
LE5.1	37 12 24	76 39 06	LE-5	JAMES	LOWER JAMES	2080206	RED BUOY #36, VIMS SLACK W.
LE5.2	37 03 28	76 35 00	LE-5	JAMES	LOWER JAMES	2080206	BUOY #C12-13
LE5.3	36 59 24	76 27 36	LE-5	JAMES	LOWER JAMES	2080206	NH-15 JAMES RIVER BRIDGE, VIMS
LE5.4	36 57 18	76 23 30	LE-5	JAMES	LOWER JAMES	2080206	BUOY #9, HAMPTON ROADS, VIMS
LE5.6	36 54 12	76 20 00	LE-5	JAMES	LOWER JAMES	2080206	RED BUOY #18
RET3.1	37 55 12	76 49 18	RET-3	RAPPAHANNOCK	LOWER RAPPAHANNOCK	2080104	NORTH OF BUOY R10, VIMS SLACK
RET3.2	37 48 30	76 42 48	RET-3	RAPPAHANNOCK	LOWER RAPPAHANNOCK	2080104	VIMS SLACK WATER #n16
RET4.1	37 31 30	76 52 12	TF-4	YORK	PAMUNKEY	2080106	SOUTHERN END LEE MARSH
RET4.2	37 34 18	76 47 36	RET-4	YORK	YORK	2080107	MUDDY POINT
RET4.3	37 30 24	76 47 18	RET-4	YORK	YORK	2080107	VIMS SLACK WATER #c57
RET5.1A	37 18 43	76 52 22	RET-5	JAMES	LOWER JAMES	2080206	ABOVE SHIPYARD LANDING
RET5.2	37 12 36	76 47 36	RET-5	JAMES	LOWER JAMES	2080206	SWANN'S PT, JRWQMP STA#19
TF3.1A	38 15 19	77 24 43	BFL	RAPPAHANNOCK	LOWER RAPPAHANNOCK	2080104	BELOW MASSAPONAX STP
TF3.1B	38 14 44	77 14 02	TF-3	RAPPAHANNOCK	LOWER RAPPAHANNOCK	2080104	BUOY # 89
TF3.2	38 10 29	77 11 19	TF-3	RAPPAHANNOCK	LOWER RAPPAHANNOCK	2080104	NEAR PORT ROYAL BRIDGE, #n74
TF3.3	38 01 07	76 54 30	TF-3	RAPPAHANNOCK	LOWER RAPPAHANNOCK	2080104	VIMS SLACK WATER #n40
TF4.2	37 34 47	77 01 19	TF-4	YORK	PAMUNKEY	2080106	WHITEHOUSE
TF4.4	37 43 22	77 01 26	TF-4	YORK	PAMUNKEY	2080106	WALKERTON
TF5.2	37 31 50	77 26 02	BFL	JAMES	MIDDLE JAMES-WILLIS	2080205	MAYO'S BR., JRWQMP STA #2
TF5.2A	37 26 59	77 25 12	TF-5	JAMES	LOWER JAMES	2080206	BUOY # 166
TF5.3	37 24 11	77 23 31	TF-5	JAMES	LOWER JAMES	2080206	BUOY #157, JRWQMP STA #8
TF5.4	37 18 41	77 17 49	TF-5	JAMES	LOWER JAMES	2080206	BUOY #8, JRWQMP STA #20a
TF5.5	37 18 46	77 13 59	TF-5	JAMES	LOWER JAMES	2080206	RED BUOY #107, JRWQMP STA#13
TF5.5A	37 18 00	77 07 30	TF-5	JAMES	LOWER JAMES	2080206	BUOY # 91
TF5.6	37 16 29	76 59 19	TF-5	JAMES	LOWER JAMES	2080206	N OF BUOY #74, JRWQMP STA#17

VIRGINIA CHESAPEAKE BAY TIDAL TRIBUTARY WATER QUALITY MONITORING STATIONS



MARYLAND CHESAPEAKE BAY WATER QUALITY MONITORING PROGRAM: RIVER INPUT COMPONENT

PROGRAM DESCRIPTION: The Maryland River Input Component is comprised of four stations where the river-borne load of nutrient concentrations and various pollutants entering the tidal portions of Maryland's tributary rivers of the Chesapeake Bay is quantified. This program monitors four major tributaries chosen to represent the range of different sources of runoff to the Bay. The Maryland Department of the Environment and the U.S. Geological Survey, Towson Office, monitor the Susquehanna, Patuxent and Choptank rivers. The Occoquan Watershed Monitoring Laboratory, in conjunction with the Metropolitan Washington Council of Governments, monitors the Potomac River fall line.

PROGRAM OBJECTIVES: To establish existing conditions in the quality of runoff entering the Bay and its tributary estuaries in order to determine improvements resulting from efforts to reduce non-point pollution in the Chesapeake Bay from surrounding watersheds.

DATE INITIATED: July 1984, Full Implementation: January 1985

COORDINATING AGENCY:
Maryland Department of the Environment
Water Management Administration
Chesapeake Bay and Special Projects Division
2500 Broening Highway
Baltimore, Maryland 21224

FUNDING AGENCY: Maryland Department of the Environment

PARTICIPATING AGENCIES:
Maryland Department of the Environment (MDE)
U.S. Geological Survey, Towson Office (USGS - Towson)
U.S. Geological Survey, Denver Analytical Laboratory (USGS - Denver)
Metropolitan Washington Council of Governments (MWCOG)
Occoquan Watershed Monitoring Laboratory (OWML)

INVESTIGATORS:

Project Officer	Robert Summers	MDE
Principal Investigator	Linda Zynjuk	USGS - Towson
Principal Investigator	Tom Schueler	MWCOG
Principal Investigator	Tom Grizzard	OWML

PARAMETERS:

Temperature
Dissolved Oxygen
Conductivity
pH
Alkalinity
Total Kjeldahl Nitrogen
Dissolved Kjeldahl Nitrogen
Nitrate[1]
Total Nitrogen*
Nitrite[1]
Nitrate + Nitrite
Ammonium

Total Phosphorus
Total Dissolved Phosphorus
Orthophosphate
Total Organic Carbon[1]
Dissolved Silica
Total Suspended Solids
Pheophytin
Chlorophyll *a*
Total Coliform[2]
Fecal Coliform[2]
Biological Oxygen Demand[2]
Chemical Oxygen Demand[2]
Soluble Aluminum [1]

* Calculated from directly measured parameters

[1] Choptank, Patuxent and Susquehanna river stations only

[2] Potomac river station only

STATIONS: The four river input stations are located on the Choptank River near Greensboro, the Susquehanna River at the Conowingo Dam, the Patuxent River at Bowie, and the Potomac River near Chain Bridge.

SAMPLE COLLECTION: Samples are collected one to four times a month, depending on the station, and the number of storm events. Because the majority of runoff and associated pollutants is carried by storms, this project emphasizes flow-weighted storm event sampling.

On the Susquehanna River at Conowingo Dam, cross-sectionally and depth-integrated grab samples are collected across the well-mixed turbine outflow. During storm events, samples are taken off the top of the spill gates in addition to the turbine outflow. OMWL collects baseflow samples on the Potomac. MDE collects grab samples on the Patuxent, Choptank and Susquehanna Rivers. USGS collects cross-sectionally and depth-integrated samples on each of the 4 rivers by lowering a bottom weighted sampler to the bottom at various widths of each river. All stations, with the exception of the Susquehanna River, are equipped with automatic sampling devices for storm event sampling. The samplers collect up to 24 discrete samples at a single intake over any period specified by the user. Linked to a flow meter, the sampler can be programmed to take samples at user-specified increments of flow. As a result, flow weighted composite samples can be obtained. In addition, regular USGS cross-sectional, depth-integrated samples and MDE grab samples are periodically collected during storm events.

All parameters are measured on all samples (including flow weighted composite samples), with the exception of the field parameters, chlorophyll, bacteria, and biological and chemical oxygen demand, which are measured during each site visit only.

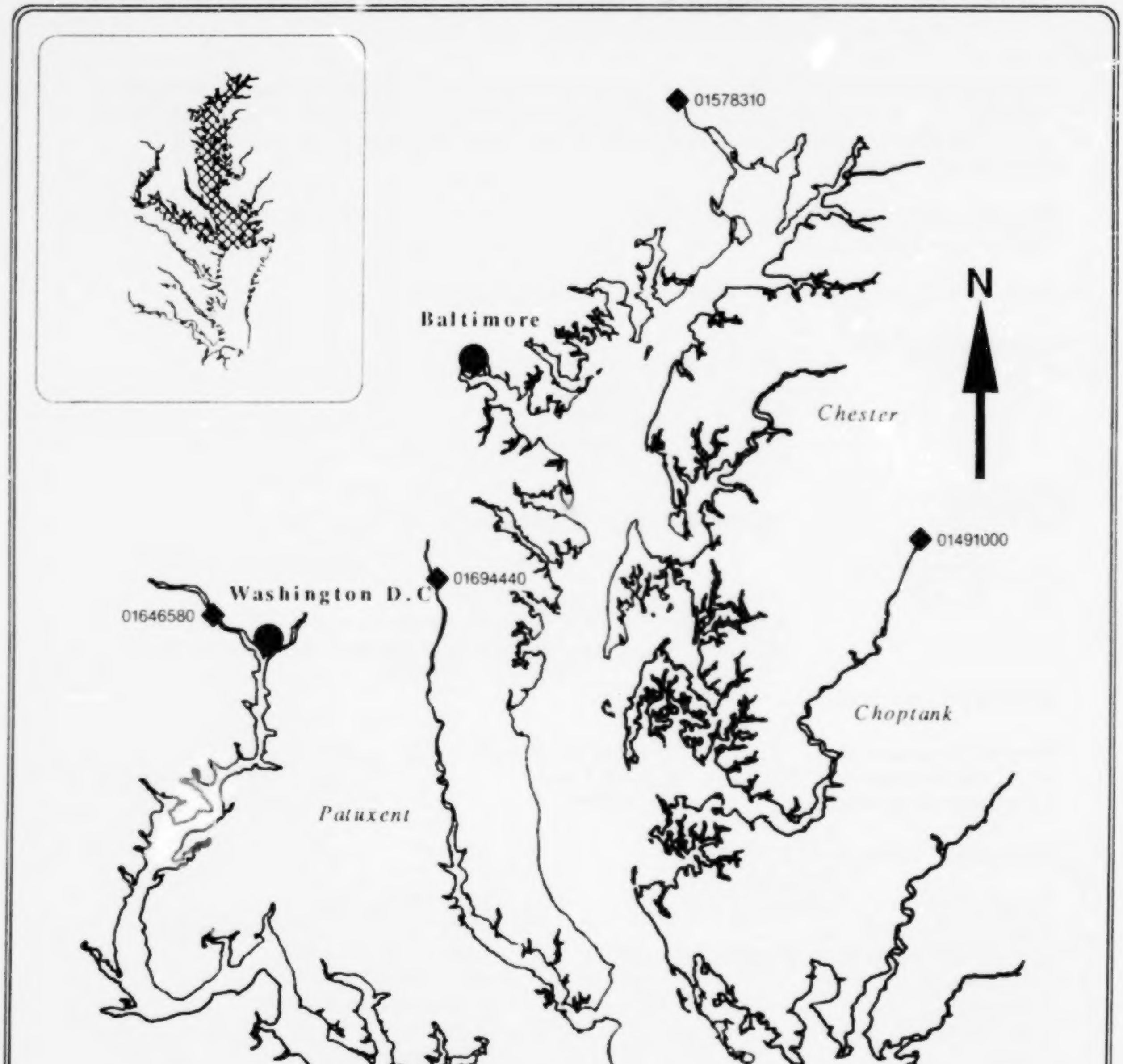
USGS samples are sent to their Denver Central Laboratory. USGS treats all nutrient samples with mercuric chloride/sodium chloride ampules and chills samples to less than 4°C. Aluminum and other metals are treated with nitric acid. Total Organic Carbon samples are shipped in glass and never touch plastic. MDE samples are chilled to 4°C. OMWL samples are chilled and preserved with sulfuric acid for nitrogen and phosphorus constituents if analyses are not performed immediately.

PROGRAM INTEGRATION: The Potomac River river input station is also a component of the MWCOG Potomac Regional Monitoring Program. In addition, each monitoring site is a part of the USGS National Stream Quality Accounting Network (NASQAN). Split sampling is performed between USGS and MWCOG on the Potomac River at Chain Bridge, between USGS and MDE (as part of the Patuxent Slack River Survey) on the Patuxent River at Bowie, Maryland and between USGS and the Susquehanna River Basin Commission on the Susquehanna River at Conowingo Dam.

MARYLAND CHESAPEAKE BAY WATER QUALITY MONITORING PROGRAM: RIVER INPUT STATIONS

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
01491000	38 59 50	75 47 09	BFL	EASTERN SHORE	CHOPTANK	2060005	CHOPTANK RIVER (NEAR GREENSBORO
01578310	39 39 31	76 10 28	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	SUSQUEHANNA RIVER (AT CONOWINGO
01594440	38 57 21	76 41 36	BFL	PATUXENT	PATUXENT	2060006	PATUXENT RIVER (NEAR BOWIE, MD)
01646580	38 55 46	77 07 02	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	POTOMAC RIVER (AT CHAIN BRIDGE)

MARYLAND CHESAPEAKE BAY WATER QUALITY MONITORING PROGRAM: RIVER INPUT STATIONS



VIRGINIA FALL LINE WATER QUALITY MONITORING PROGRAM

PROGRAM DESCRIPTION: The Virginia Fall Line Water Quality Monitoring Program is designed to determine nutrient concentrations entering the tidal portions of Virginia's tributaries. Monitoring stations are located at the fall lines of the James, Mattaponi, Pamunkey, and Rappahannock Rivers.

PROGRAM OBJECTIVES: To quantify nutrient concentrations entering the tidal portions of Virginia's tributaries.

DATE INITIATED: July 1984, expanded in August 1988

COORDINATING AGENCY:
Virginia Water Control Board
Chesapeake Bay Office
2111 North Hamilton Street
Richmond, Virginia 23230

FUNDING AGENCY: Virginia Water Control Board

PARTICIPATING AGENCIES:
Virginia Water Control Board (VWCB)
Virginia Division of Consolidated Laboratory Services (DCLS)
U.S. Geological Survey - Richmond Office (USGS-Richmond)

INVESTIGATORS:

Program Coordinator	Frederick Hoffman	VWCB
Principal Investigator	Dennis Lynch	USGS-Richmond
Laboratory Analyses	Dick Pitts	DCLS

PARAMETERS:

Temperature
Dissolved Oxygen
Specific Conductance (field and laboratory)
pH (field and laboratory)
Alkalinity
Total Kjeldahl Nitrogen
Nitrite
Nitrate + Nitrite
Ammonium
Total Phosphorus
Dissolved Inorganic Phosphorus
Total Organic Carbon
Dissolved Silica
Total Suspended Solids
Turbidity
Chlorophyll *a*
Phaeophytin

STATIONS: There are four monitoring stations, one each at the fall line of the James, Mattaponi, Pamunkey and Rappahannock Rivers.

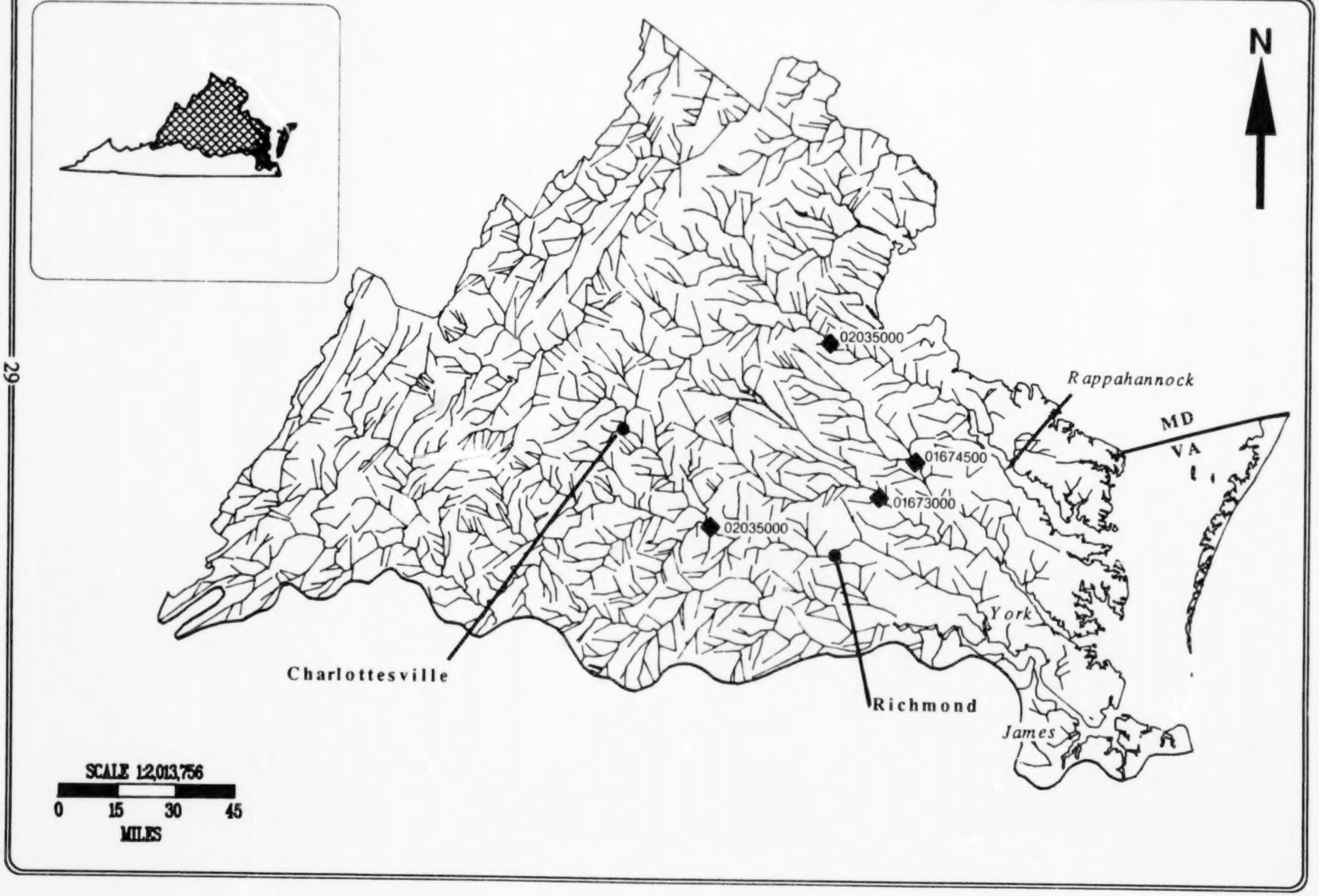
SAMPLE COLLECTION: During baseflow, integrated composite samples are collected manually on a semi-monthly basis. Samples are horizontally integrated, with two to five subsamples taken across each river at mid-depth. During high flow, three to five sampling events are performed to collect data at several stages. These samples are both horizontally and vertically integrated.

PROGRAM INTEGRATION: From July 1984 through June 1986, USGS was contracted to conduct this sampling. The program was undertaken by the regional offices of the Virginia Water Control Board in July 1986. Since July 1988 the sampling has been jointly conducted by VWCB and USGS. A field split sample program is in place between the DCLS and USGS (Denver) labs.

VIRGINIA FALL LINE WATER QUALITY MONITORING STATIONS

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
01668000	38 19 20	77 31 05	AFL	RAPPAHANNOCK	LOWER RAPPAHANNOCK	2080104	RAPPAHANNOCK RIVER (AT FREDERIC
01673000	37 46 03	77 19 57	BFL	YORK	PAMUNKEY	2080106	PAMUNKEY RIVER (AT HANOVER, VA)
01674500	37 53 16	77 09 48	BFL	YORK	MATTAPONI	2080105	MATTAPONI RIVER (AT BEULAVILLE,
02035000	37 40 15	78 05 10	AFL	JAMES	MIDDLE JAMES-WILLIS	2080205	JAMES RIVER (AT CARTERSVILLE, V

VIRGINIA FALL LINE WATER QUALITY MONITORING STATIONS



NEW YORK WATER QUALITY ASSESSMENT PROGRAM

PROGRAM DESCRIPTION: The New York Water Quality Assessment Program has recently been developed and is performed in cooperation with the U.S. Geological Survey. Through this program, 23 locations in all basins are monitored during the full sampling cycle with additional locations monitored during intensive cyclical basin studies. For these intensive studies, major drainage basins of the state have been divided into three groups, with each being intensively monitored during two successive years within a six year cycle. The Susquehanna River basin has four permanent stations and is scheduled to begin its first two year intensive monitoring in 1991.

PROGRAM OBJECTIVES: To produce timely, definitive statements on water quality by clustering sampling into two consecutive years. To discern trends in water quality within 15 years through detailed, interrelated, uniformly collected information, integrating water column, bottom sediment macroinvertebrate and fish monitoring.

DATE INITIATED: 1987

COORDINATING AGENCY:

New York State Department of Environmental Conservation
Bureau of Monitoring Assessment
50 Wolf Road
Room 128
Albany, New York 12233-3505

FUNDING AGENCIES:

New York State Department of Environmental Conservation
U.S. Geological Survey

PARTICIPATING AGENCIES:

New York State Department of Environmental Conservation (NYDEC)
U.S. Geological Survey (USGS)
New York Department of Health Laboratory - Albany (NYDHL)

INVESTIGATORS:

Principal Investigator	Frank Estabrooks	NYDEC

PARAMETERS:

Water Column:

- Water Temperature
- Dissolved Oxygen
- pH
- Conductivity
- Hardness
- Total Phosphate
- Dissolved Phosphate
- Total Kjeldahl Nitrogen
- Nitrate
- Nitrite
- Ammonia
- Turbidity
- Total Suspended Solids
- Total Solids
- Total Volatile and Fixed Solids
- Total Coliform
- Fecal Coliform
- Aluminum
- Iron
- Lead
- Nickel
- Manganese
- Mercury
- Copper
- Zinc

Cadmium
Volatile Halogenated Organics
Common Ions (Mg, Ca, Cl, Fl, Na, K, Sulfate)

Sediments:
PCB
Organochloride Pesticides

STATIONS: There are four permanent stations in the Susquehanna River basin. Additional stations, many of which are stations sampled through a different program in the past, will be sampled during the two year intensive survey.

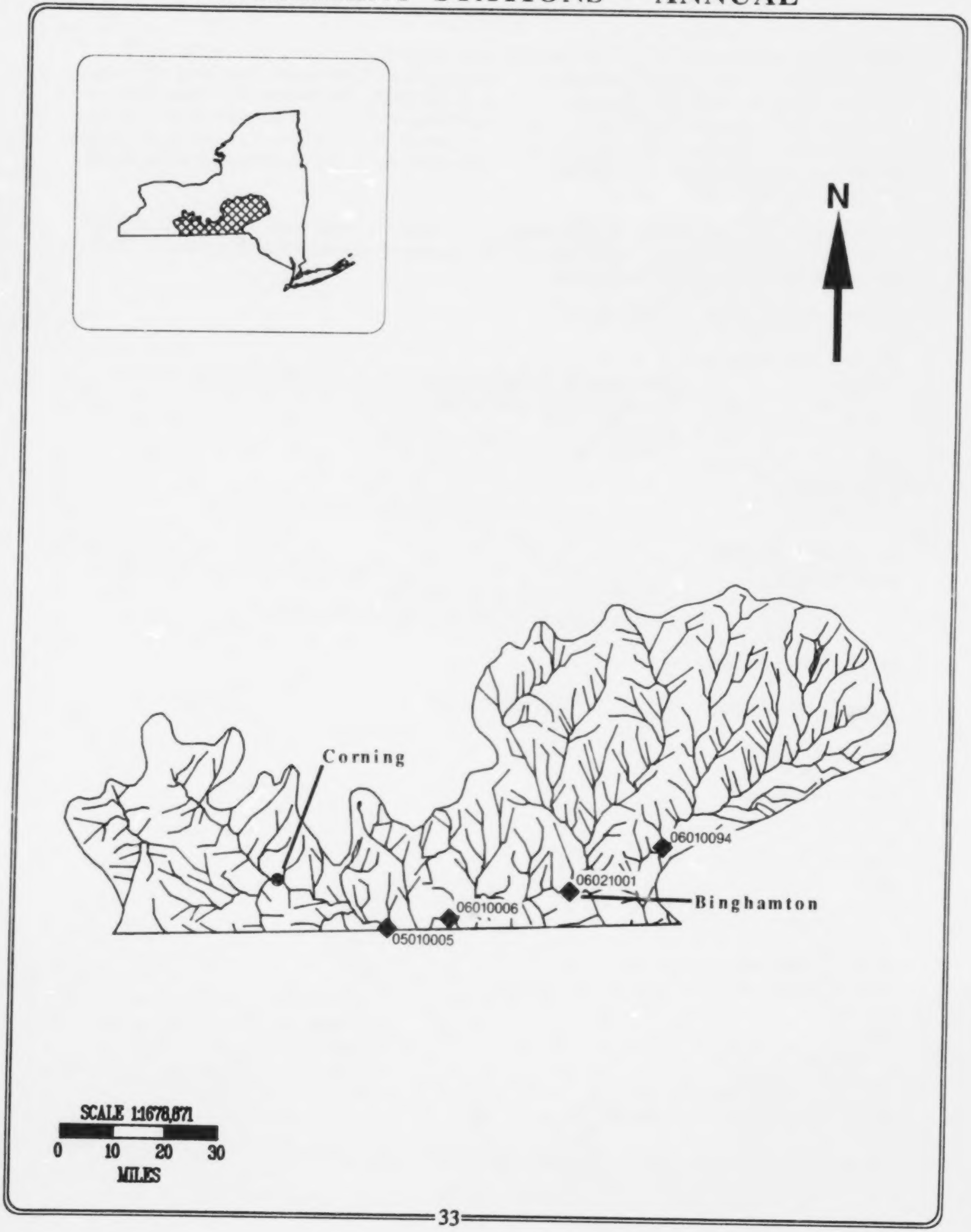
SAMPLE COLLECTION: Samples are collected five times per year between intensive surveys, and approximately 9-10 times per year during an intensive two year cycle. Water temperature, dissolved oxygen, conductivity and pH are measured in the field. Samples are collected throughout the water column using a depth-integrated sampler. Metals, common ions, and hardness are analyzed at the USGS - Denver Laboratory with the remainder analyzed at the DOH Laboratory in Albany, and NYDEC Hemlock Street laboratory

PROGRAM INTEGRATION: This program is conducted in conjunction with the New York Benthic Macroinvertebrate Monitoring Program.

NEW YORK WATER QUALITY ASSESSMENT STATIONS - ANNUAL

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
05010005	42 00 10	76 38 06	AFL	SUSQUEHANNA	CHEMUNG	2050105	CHEMUNG RIVER IN CHEMUNG
06010006	42 01 45	76 23 06	AFL	SUSQUEHANNA	WEGO-WAPPASENING	2050103	SUSQUEHANNA RIVER, SMITHBORO AT
06010094	42 13 38	75 31 28	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA	2050101	SUSQUEHANNA RIVER IN AFTON AT R
06021001	42 06 11	75 54 54	AFL	SUSQUEHANNA	WEGO-WAPPASENING	2050103	CHENANGO RIVER IN BINGHMTN AT C

NEW YORK WATER QUALITY ASSESSMENT STATIONS - ANNUAL



PENNSYLVANIA WATER QUALITY NETWORK

PROGRAM DESCRIPTION: The Pennsylvania Water Quality Network consists of 73 stations at which routine monthly sampling is conducted in the Chesapeake Bay basin - 69 in the Susquehanna River Basin and four in the Potomac River Basin. Parameters have been added to those normally evaluated at 10 stations on the lower Susquehanna River, in order to provide data comparable to other Chesapeake Bay monitoring programs. The number of stations in the program has recently been decreased as a result of a comprehensive review and modification of the Water Quality Network in 1988.

PROGRAM OBJECTIVES: To assess long and short-term water quality trends, to monitor the progress of the Commonwealth's water quality management program, and to provide a data base for water users and public inquiries.

DATE INITIATED: 1962

COORDINATING AGENCY:

Pennsylvania Department of Environmental Resources
Bureau of Water Quality Management
P.O. Box 2063
Harrisburg, Pennsylvania 17120

FUNDING AGENCY: Pennsylvania Department of Environmental Resources

PARTICIPATING AGENCIES:

Pennsylvania Department of Environmental Resources (PADER)
U.S. Geological Survey (USGS)
Susquehanna River Basin Commission (SRBC)

INVESTIGATORS:

Water Quality Assessment Chief	Richard Shertzer	PADER

PARAMETERS:

Stream Discharge
Temperature
Dissolved Oxygen
Specific Conductivity
pH
Alkalinity
Total Acidity*
Hardness
Total Kjeldahl Nitrogen (wholewater)*
Total Kjeldahl Nitrogen (filtrate)*
Nitrate
Nitrite
Ammonium
Total Phosphorus
Total Dissolved Phosphorus*
Dissolved Inorganic Phosphorus*
Total Organic Carbon
Total Dissolved Solids
Total Suspended Solids*
Turbidity*
Chlorides*
Aluminum
Calcium*
Copper
Iron
Lead
Magnesium*
Manganese
Nickel
Sulfates
Zinc

*Indicates additional parameters at stations designated as Chesapeake Bay Program stations.

STATIONS: There are 69 stations in the Pennsylvania Water Quality Network located in the Susquehanna River Basin, and four stations in the Potomac River Basin. Additional parameters are measured at 10 of these stations (201, 204, 206, 212, 213, 231, 240, 259, 260 and 263) in order to make their parameters consistent with the Chesapeake Bay Program.

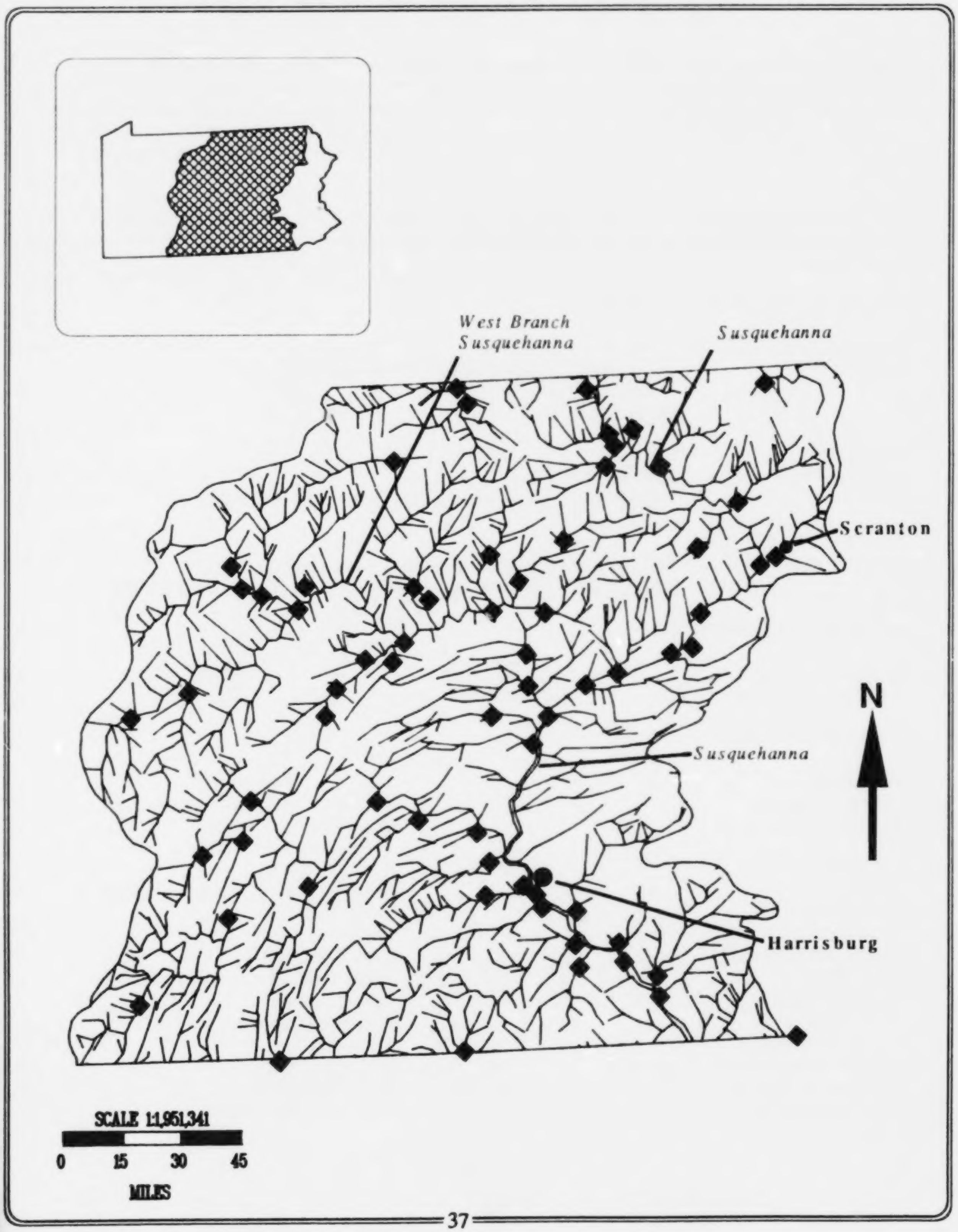
SAMPLE COLLECTION: Sample collection is conducted monthly for all parameters. Field sampling is carried out by six Bureau of Water Quality Management regional offices. At most stations a measurement of stream discharge is taken at the time of sample collection. Field analysis of temperature, pH, dissolved oxygen and flow may be taken at USGS gauges. Composite lab samples are generally obtained from bridges at the mid, third, or quarter points across the waterway depending on its size. Many samples taken are grab samples although they are increasingly being integrated by depth. Samples obtained at the Chesapeake Bay Program stations are integrated by depth.

PROGRAM INTEGRATION: Two of these water quality stations overlap with the Susquehanna River Basin Commission's interstate water quality stations. SRBC assists in the collection of samples at these stations (when they visit the stations on a quarterly basis) as well as at other stations as needed.

PENNSYLVANIA WATER QUALITY STATIONS

STATION NAME (S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
N0201	40 01 44	76 31 00	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	PA RTE 462 COLUMBIA WRIGHTSVILL
N0202	40 15 27	76 53 12	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA-SWATARA	2050305	SUSQU. R. AT WALNUT ST. BR. IN
N0203	40 51 15	76 48 21	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA-PENNS	2050301	VETERANS MEMORIAL BR. BTWN SUNB
N0204	39 53 34	76 21 29	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	PEQUEA CREEK 5,000' UPSTRM FR M
N0206	40 03 19	76 31 33	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	CHICKIES CREEK AT RT 441 BRIDGE
N0207	40 00 39	76 42 38	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	CODORUS CREEK AT LR66021 BRIDGE
N0210	40 04 52	76 43 04	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	W. CONEWAGO CR AT ROUTE 181 BRI
N0211	40 11 58	76 43 00	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA-SWATARA	2050305	SWATARA CR. AT RT 441 BRIDGE IN
N0212	40 13 27	76 51 38	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA-SWATARA	2050305	RT 111 BRIDGE ST. BR. AT NEW CU
N0213	40 15 36	77 06 11	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA-SWATARA	2050305	CONODOGUINET CR NR COUNTRY MANO
N0214	40 28 42	77 07 46	AFL	SUSQUEHANNA	LOWER JUNIATA	2050304	JUNIATA R. AT ROUTE 34 BRIDGE I
N0217	40 36 33	78 08 11	AFL	SUSQUEHANNA	UPPER JUNIATA	2050302	L JUNIATA R, AT PA 45 BRIDGE AT
N0220	40 35 46	77 34 24	AFL	SUSQUEHANNA	LOWER JUNIATA	2050304	KISHACOQUILLAS CR, MAIN STREET
N0223	40 12 54	78 15 54	AFL	SUSQUEHANNA	RAYSTOWN	2050303	RAYSTOWN BR JUNIATA R. PR913 BR
N0224	40 28 36	78 10 39	AFL	SUSQUEHANNA	UPPER JUNIATA	2050302	FRANKSTOWN BR JUNIATA R, R&R BR
N0228	40 46 29	76 52 11	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA-PENNS	2050301	MIDDLE CR, OLD US 11 & 15 BR. I
N0229	40 51 59	77 02 56	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA-PENNS	2050301	PENNS CREEK, PA RT 104 BR AT VI
N0231	39 57 41	76 21 57	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	CONESTOGA CREEK AT T-561 BRIDGE
N0240	40 16 16	76 54 53	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA-SWATARA	2050305	CONODOGUINET CREEK MOUTH, NEAR
N0243	40 22 50	77 04 57	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA-SWATARA	2050305	SHERMANS CR. NEAR DUNCANNON AT
N0245	40 31 45	77 23 32	AFL	SUSQUEHANNA	LOWER JUNIATA	2050304	TUSCARORA CR, PA RTE 75 BR.
N0249	40 20 05	77 51 37	AFL	SUSQUEHANNA	LOWER JUNIATA	2050304	AUGHWICH CR, TR 403 AT AUGHWICK
N0252	40 25 51	78 21 45	AFL	SUSQUEHANNA	UPPER JUNIATA	2050302	BEAVERDAM BR JUNIATA R. 2000 FT
N0256	39 43 47	75 46 12	BFL	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	BIG ELK CR, STRICKERSVILLE RD B
N0301	40 57 29	76 37 10	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-LACKAWANNA	2050107	N.BR.SUSQUEHANNA R, PR 54 BRIDG
N0302	41 11 19	76 05 13	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-LACKAWANNA	2050107	SUSQUEHANNA R, RT11 BR. NR RETR
N0303	41 21 00	75 48 05	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-LACKAWANNA	2050107	SUSQUEHANNA R, COXTON RR BR IN
N0305	41 45 55	76 26 28	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-TUNKHANNOCK	2050106	SUSQUEHANNA R, BRIDGE ON RT 6 A
N0306	41 57 48	75 44 33	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA	2050101	SUSQUEHANNA R, ROUTE 11 BRIDGE
N0308	40 59 42	76 28 25	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-LACKAWANNA	2050107	FISHING CR, RT 42 BRIDGE IN HEM
N0309	41 03 18	76 13 54	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-LACKAWANNA	2050107	NESCOPECK CREEK, BRIDGE ON LR 4
N0310	41 04 17	76 08 02	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-LACKAWANNA	2050107	WAPWALLOPEN CR, RT239 BR IN CON
N0313	41 21 33	75 44 41	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-LACKAWANNA	2050107	LACKAWANNA R, BRIDGE ST. BR IN
N0317	41 33 29	75 53 42	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-TUNKHANNOCK	2050106	TUNKHANNOCK CREEK, BRIDGE ON RT
N0318	41 42 29	76 29 06	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-TUNKHANNOCK	2050106	TOWANDA CREEK AT RT 220 BRIDGE
N0320	41 59 46	77 08 32	AFL	SUSQUEHANNA	TIOGA	2050104	COWANESQUE RIVER 1 MI UPSTR FR
N0324	41 57 27	77 06 58	AFL	SUSQUEHANNA	TIOGA	2050104	TIOGA R, BRIDGE ON TR773, LAWRE
N0332	41 58 41	76 32 58	AFL	SUSQUEHANNA	CHEMUNG	2050105	CHEMUNG RIVER LR08066 BR.
N0333	41 47 24	76 27 43	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-TUNKHANNOCK	2050106	LR08191 BR
N0334	41 41 49	76 13 52	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-TUNKHANNOCK	2050106	PA RT 706 BR. AT MERRYALL
N0335	41 49 50	76 21 00	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-TUNKHANNOCK	2050106	PA RT 467 BR.
N0337	41 24 57	76 05 27	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-TUNKHANNOCK	2050106	T310 BR NEAR STULL
N0401	40 58 02	76 52 45	AFL	SUSQUEHANNA	LOWER WEST BRANCH SUSQUEHANNA	2050206	W. BR. SUSQUEHANNA RIVER AT PA
N0402	41 13 44	77 01 09	AFL	SUSQUEHANNA	LOWER WEST BRANCH SUSQUEHANNA	2050206	W.BR.SUSQ. R, MAYNARD ST BR IN
N0406	40 53 49	78 40 38	AFL	SUSQUEHANNA	UPPER WEST BRANCH SUSQUEHANNA	2050201	W.BR.SUSQUEHANNA R, T-418 BRG I
N0407	41 13 02	76 47 15	AFL	SUSQUEHANNA	LOWER WEST BRANCH SUSQUEHANNA	2050206	MUNCY CREEK, OLD RT 147 BR
N0408	41 19 31	76 54 43	AFL	SUSQUEHANNA	LOWER WEST BRANCH SUSQUEHANNA	2050206	LOYALSOCK CR, PR 973 BRG AT LOY
N0409	41 25 06	77 01 59	AFL	SUSQUEHANNA	LOWER WEST BRANCH SUSQUEHANNA	2050206	LYCOMING CR, TR 840 BRG IN LEWI
N0410	41 16 59	77 19 21	AFL	SUSQUEHANNA	PINE	2050205	PINE CR, RxR BR AT RAMSEY
N0412	41 07 35	77 26 00	AFL	SUSQUEHANNA	MIDDLE WEST BRANCH SUSQUEHANNA	2050203	BALD EAGLE CR, LR18013 BR. AT C
N0413	40 58 31	77 44 35	AFL	SUSQUEHANNA	BALD EAGLE	2050204	BALD EAGLE CR, LR 14010 BRIDGE
N0415	40 53 23	77 47 40	AFL	SUSQUEHANNA	BALD EAGLE	2050204	SPRING CR, LR14040 HARTELL'S BR
N0418	41 15 41	77 54 10	AFL	SUSQUEHANNA	MIDDLE WEST BRANCH SUSQUEHANNA	2050203	SINNEMAHONING CR, LR18001 BR AT
N0419	41 19 12	78 04 51	AFL	SUSQUEHANNA	SINNEMAHONING	2050202	FIRST FORK SINNEMAHONING CREEK,
N0420	41 24 48	78 11 50	AFL	SUSQUEHANNA	SINNEMAHONING	2050202	DRFWD BR SINNEMAHONG LR12004 BR
N0422	40 59 09	78 24 22	AFL	SUSQUEHANNA	UPPER WEST BRANCH SUSQUEHANNA	2050201	CLEARFIELD CR, PA RT 153
N0423	41 04 29	77 35 32	AFL	SUSQUEHANNA	BALD EAGLE	2050204	US 220 BRIDGE AT BEECH CREEK
N0427	41 04 29	76 52 21	AFL	SUSQUEHANNA	LOWER WEST BRANCH SUSQUEHANNA	2050206	WHITE DEER CR, US 15 BRIDGE IN
N0428	41 27 22	76 41 24	AFL	SUSQUEHANNA	LOWER WEST BRANCH SUSQUEHANNA	2050206	LOYALSOCK CREEK PA RT 87 BR NR
N0429	41 18 34	77 21 45	AFL	SUSQUEHANNA	PINE	2050205	LITTLE PINE CR, PA RT 44 BRG AT
N0430	41 44 15	77 25 50	AFL	SUSQUEHANNA	PINE	2050205	PINE CREEK DNSTRM FR CONFL W/ M
N0433	41 04 31	77 28 40	AFL	SUSQUEHANNA	BALD EAGLE	2050204	FISHING CR, LR18007 BR NEAR CED
N0434	41 19 10	77 52 25	AFL	SUSQUEHANNA	MIDDLE WEST BRANCH SUSQUEHANNA	2050203	KETTLE CR, 3.2 MI UPSTRM FR PA
N0439	41 20 02	78 08 10	AFL	SUSQUEHANNA	SINNEMAHONING	2050202	BENNETT BRANCH, T343 BRIDGE S O
N0501	39 30 24	77 47 27	AFL	POTOMAC	CONOCOCHEAGUE-OPEQUON	2070004	CONOCOCHEAGUE CR 0.5 MI DNSTRM
N0503	39 44 00	77 13 45	AFL	POTOMAC	MONOCACY	2070009	ROCK CREEK SR 3002 BRIDGE
N0505	39 43 23	78 03 37	AFL	POTOMAC	CONOCOCHEAGUE-OPEQUON	2070004	LICKING CREEK SR0456 BR AT PA/M
N0506	39 55 37	78 39 36	AFL	SUSQUEHANNA	RAYSTOWN	2050303	LITTLE WILLS CREEK, SR0096 BR A

PENNSYLVANIA WATER QUALITY STATIONS



SUSQUEHANNA RIVER BASIN COMMISSION INTERSTATE WATER QUALITY MONITORING PROGRAM

PROGRAM DESCRIPTION: The Susquehanna River Basin Commission Interstate Water Quality Monitoring program samples 12 stations on the New York - Pennsylvania and the Maryland - Pennsylvania borders for a variety of nutrients and metals. These stations, which were sampled on a monthly basis for the first 1 1/2 years of the program, are now sampled quarterly with an expanded lab analysis. In addition, an annual survey of all interstate streams began in 1988.

PROGRAM OBJECTIVES: To monitor interstate streams that receive point and nonpoint discharges which can potentially impact water quality, and to collect data for future trend assessment.

DATE INITIATED: April 1986

COORDINATING AGENCY:
Susquehanna River Basin Commission
1721 North Front Street
Harrisburg, PA 17102

FUNDING AGENCIES:
U.S. EPA Region III
Pennsylvania Department of Environmental Resources

PARTICIPATING AGENCIES:
Susquehanna River Basin Commission (SRBC)
Pennsylvania Department of Environmental Resources (PADER)

INVESTIGATORS:

Program Coordinator	Jerry Hollowell	SRBC
Principal Investigator	Carl McMorran	SRBC

PARAMETERS:

Temperature
Dissolved Oxygen
Specific Conductivity
pH
Alkalinity
Acidity
Free Chlorine
Total Kjeldahl Nitrogen (wholewater)
Total Kjeldahl Nitrogen (filtrate)
Total Nitrate
Dissolved Nitrate
Total Nitrite
Dissolved Nitrite
Total Ammonia
Dissolved Ammonia
Total Phosphorus
Dissolved Phosphorus
Dissolved Inorganic Phosphorous
Total Organic Carbon
Total Suspended Solids
Total Dissolved Solids
5-day Biological Oxygen Demand
Total Aluminum
Dissolved Aluminum
Total Calcium
Dissolved Calcium
Total Chloride
Dissolved Chloride
Total Iron
Dissolved Iron
Total Magnesium
Dissolved Magnesium

Total Manganese
Dissolved Manganese
Total Sulfate
Dissolved Sulfate

STATIONS: There are 12 stations sampled on a quarterly basis. All stations are located near either the New York or Maryland borders of Pennsylvania. In addition to these, 24 more stations on these borders are sampled once a year in an attempt to cover all interstate streams in the basin. This annual sampling is performed with the intent of sighting prospective or new water quality problems.

SAMPLE COLLECTION: At all stations, composite samples are taken across the stream with depth-integrated samplers. Field measurements for temperature, dissolved oxygen, pH, conductivity, alkalinity, acidity, and free chlorine are performed. Metal samples are fixed with nitric acid and all samples are chilled. Lab analysis is carried out by PADER.

Sampling is coordinated with the Pennsylvania Department of Environmental Resources (PADER) Water Quality Program where two stations overlap. SRBC collects samples for PADER at these stations when they perform their quarterly sampling, adding turbidity, hardness, copper, lead and zinc to their list of parameters in order to keep PADER's data complete.

PROGRAM INTEGRATION: SRBC's annual macroinvertebrate monitoring is performed along with water quality monitoring at all stream border stations.

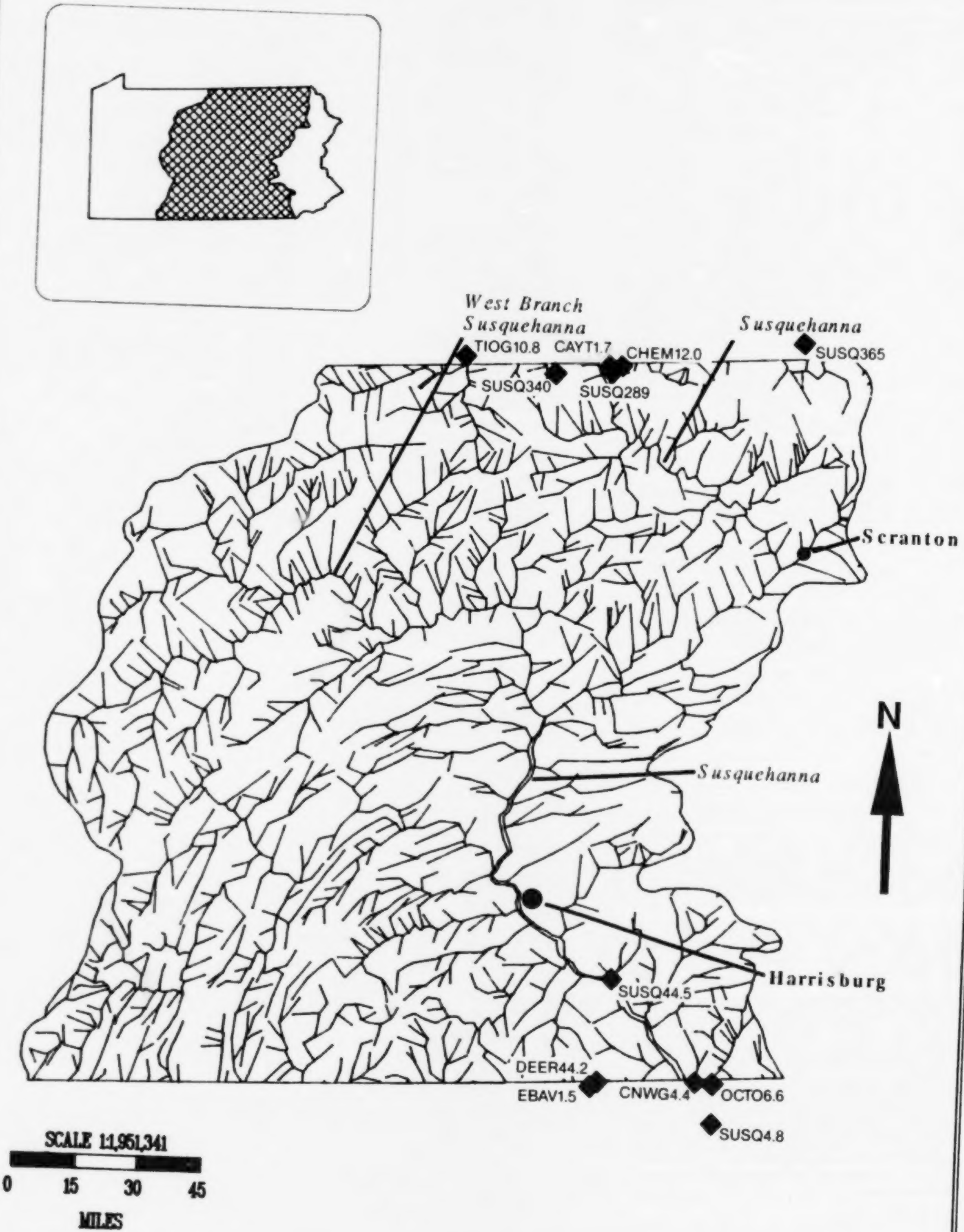
SRBC INTERSTATE WATER QUALITY MONITORING STATIONS - QUARTERLY

STATION NAME (S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
CAYT1.7	42 00 00	76 31 24	AFL	SUSQUEHANNA	WEGO-WAPPASENING	2050103	CAYUTA CREEK AT WAVERLY, NY
CHEM12.0	42 00 08	76 28 06	AFL	SUSQUEHANNA	WEGO-WAPPASENING	2050103	CHEMUNG,NY
CNWG4.4	39 43 32	76 11 08	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	CONOWINGO CREEK AT PLEASANT GRO
DEER44.2	39 43 02	76 35 10	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	DEER CREEK AT NORRISVILLE, MD
EBAV1.5	39 43 29	76 35 45	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	EBAUGHS CREEK AT STEWARTSTOWN,
OCTO6.6	39 42 24	76 06 57	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	OCTOARO CREEK AT NEW BRIDGE, MD
SUSQ289.1	41 59 05	76 30 05	AFL	SUSQUEHANNA	WEGO-WAPPASENING	2050103	SAYRE,PA
SUSQ340.0	41 57 58	76 44 33	AFL	SUSQUEHANNA	CHEMUNG	2050105	KIRKWOOD,NY
SUSQ365.0	42 04 28	75 38 14	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA	2050101	WINDSOR,NY
SUSQ4.8	39 34 16	76 05 32	BFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	PORT DEPOSIT, MD
SUSQ44.5	40 03 16	76 31 52	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	COLUMBIA, PA
TIOG10.8	42 01 44	77 07 57	AFL	SUSQUEHANNA	TIOGA	2050104	TIOGA RIVER AT LINDLEY, NY

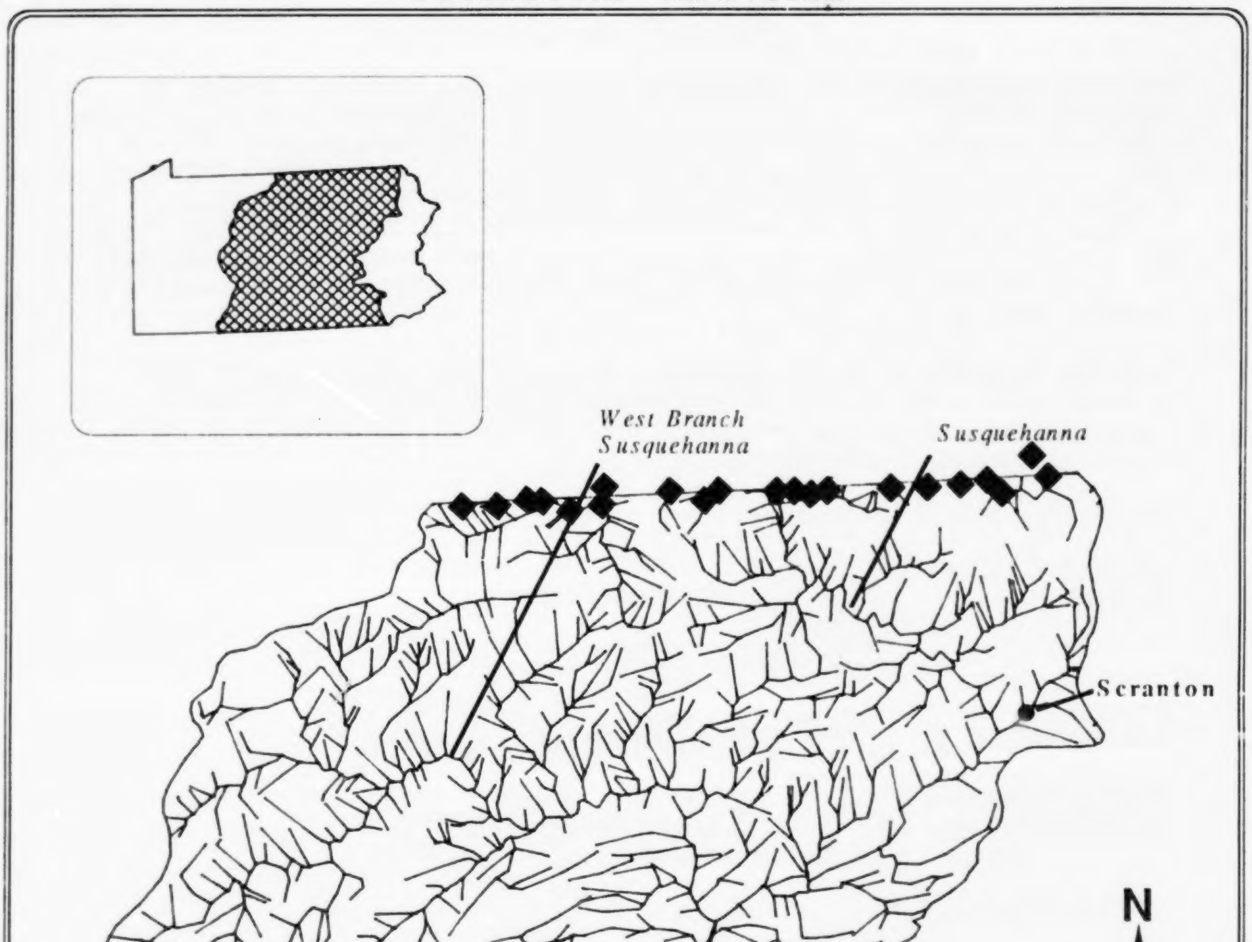
SRBC INTERSTATE WATER QUALITY MONITORING STATIONS - ANNUAL

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
APAL6.9	41 59 41	76 07 59	AFL	SUSQUEHANNA	WEGO-WAPPASENING	2050103	APPALACHIAN CREEK
BBCC4.1	39 43 01	76 29 30	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	BIG BRANCH DEER CREEK
BNTY0.9	42 00 34	76 43 48	AFL	SUSQUEHANNA	CHEMUNG	2050105	BENTLEY CREEK
BRHR0.1	41 59 46	76 20 37	AFL	SUSQUEHANNA	WEGO-WAPPASENING	2050103	BRIGGS HOLLOW RUN
CACS1.6	42 00 01	75 34 45	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA	2050101	CASCADE CREEK
CAYT1.7	42 00 00	76 31 24	AFL	SUSQUEHANNA	WEGO-WAPPASENING	2050103	CAYUTA CREEK AT WAVERLY, NY
CHEM12.0	42 00 08	76 28 06	AFL	SUSQUEHANNA	WEGO-WAPPASENING	2050103	CHEMUNG, NY
CHOC9.1	41 59 27	76 00 04	AFL	SUSQUEHANNA	WEGO-WAPPASENING	2050103	CHOCONUT CREEK
CNWG4.4	39 43 32	76 11 08	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	CONOWINGO CREEK AT PLEASANT GRO
COWN2.2	41 59 20	77 08 51	AFL	SUSQUEHANNA	TIOGA	2050104	COWANESQUE RIVER
CPBK2.0	41 59 50	77 20 15	AFL	SUSQUEHANNA	TIOGA	2050104	CAMP BROOK CREEK
DEER44.2	39 43 02	76 35 10	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	DEER CREEK NR NORRISVILLE, MD
EBAV1.5	39 43 29	76 35 45	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	EBAUGHS CREEK NR STEWARTSTOWN,
FBDC4.1	39 42 44	76 26 33	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	FALLING BRANCH DEER CREEK
HESS0.1	41 58 39	77 15 00	AFL	SUSQUEHANNA	TIOGA	2050104	BILL HESS CREEK
HLDN3.5	42 00 15	77 23 34	AFL	SUSQUEHANNA	TIOGA	2050104	HOLDEN CREEK
LNGA2.5	39 43 31	76 58 55	AFL	POTOMAC	MONOCACY	2070009	LONG ARM CREEK
LSNK7.6	41 59 49	75 53 53	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA	2050101	LITTLE SNAKE CREEK
NFCR7.6	41 59 48	77 37 22	AFL	SUSQUEHANNA	TIOGA	2050104	NORTH FORK COWANESQUE CREEK
OCTO6.6	39 42 24	76 06 57	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	OCTORARO CREEK AT NEW BRIDGE, M
PARK0.7	41 59 54	76 27 36	AFL	SUSQUEHANNA	WEGO-WAPPASENING	2050103	PARKS CREEK
SACK2.6	41 59 42	76 23 48	AFL	SUSQUEHANNA	WEGO-WAPPASENING	2050103	SACKETT CREEK
SBCC20.4	39 43 32	76 58 50	AFL	POTOMAC	MONOCACY	2070009	SOUTH BRANCH CONEWAGO CREEK
SCTT3.0	39 43 24	76 20 14	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	SCOTT CREEK
SEEL10.3	42 00 03	76 54 12	AFL	SUSQUEHANNA	CHEMUNG	2050105	SEELLEY CREEK, NY
SNAK2.3	41 59 37	75 47 42	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA	2050101	SNAKE CREEK NR BROOKDALE, PA
SOUT2.8	41 59 20	76 46 26	AFL	SUSQUEHANNA	CHEMUNG	2050105	SOUTH CREEK
SUSQ289.1	41 59 05	76 30 05	AFL	SUSQUEHANNA	WEGO-WAPPASENING	2050103	SAYRE, PA
SUSQ340.0	41 57 58	75 44 33	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA	2050101	KIRKWOOD, NY
SUSQ365.0	42 04 28	75 38 14	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA	2050101	WINDSOR, NY
SUSQ4.8	39 34 16	76 05 32	BFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	PORT DEPOSIT
SUSQ44.5	40 03 16	76 31 52	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	COLUMBIA, SC
TIOG10.8	42 01 44	77 07 57	AFL	SUSQUEHANNA	TIOGA	2050104	TIOGA RIVER AT LINDLEY, NY
TROW1.8	42 00 00	75 43 54	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA	2050101	TROWBRIDGE CREEK
TRUP4.5	41 59 23	77 29 31	AFL	SUSQUEHANNA	TIOGA	2050104	TROUPS CREEK
WAPP2.6	41 59 39	76 20 40	AFL	SUSQUEHANNA	WEGO-WAPPASENING	2050103	WAPPASENING CREEK

SRBC INTERSTATE WATER QUALITY MONITORING STATIONS - QUARTERLY



SRBC INTERSTATE WATER QUALITY MONITORING STATIONS - ANNUAL



PHILADELPHIA ELECTRIC COMPANY SUSQUEHANNA RIVER MONITORING PROGRAM - WATER QUALITY COMPONENT

PROGRAM DESCRIPTION: The Philadelphia Electric Company Susquehanna River Monitoring Program - Water Quality Component is part of a long-term environmental monitoring study on the Susquehanna River in southern Pennsylvania and northern Maryland. Through it, water quality parameters were measured twice a month from the spring through the fall in the Conowingo Pond at three stations from 1980 to 1988 with monitoring of water temperature and dissolved oxygen performed continuously at the Conowingo Dam. Prior to 1980, the scope of ecological studies was greater with monitoring conducted at these three stations plus additional stations. As of 1988 only monitoring of temperature and dissolved oxygen at Conowingo Dam has been maintained.

PROGRAM OBJECTIVE: To establish environmental baseline conditions in the lower Susquehanna River and to evaluate the long-term environmental impacts of the Muddy Run Pumped Storage Reservoir and Power Station, the Peach Bottom Atomic Power Plant and the Conowingo Dam and Hydroelectric Station.

DATE INITIATED: June 1967

COORDINATING AGENCY:

Philadelphia Electric Company
2301 Market Street
Philadelphia, PA 19101

FUNDING AGENCY: Philadelphia Electric Company

PARTICIPATING AGENCIES:

Philadelphia Electric Company (PECO)
RMC Environmental Services (RMCES)

INVESTIGATORS:

Program Coordinator	Howard Hansell	PECO
Principal Investigator	Dilip Mathur	RMCES
Principal Investigator	Doug Wahl	RMCES

PARAMETERS:

Temperature
Dissolved Oxygen

STATIONS: There is one station located on the Susquehanna River at Conowingo Dam.

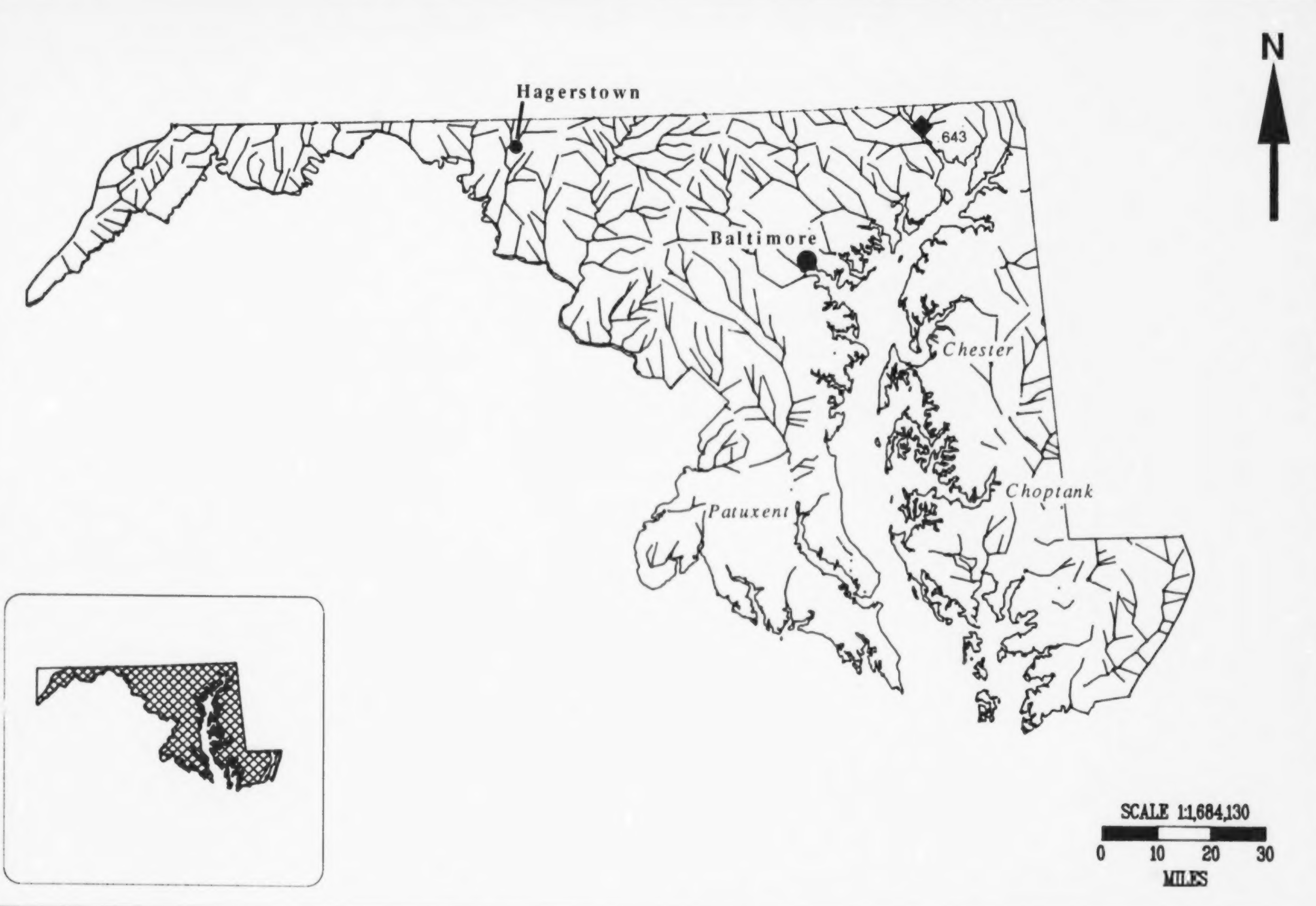
SAMPLE COLLECTION: Temperature and dissolved oxygen are monitored continuously at Conowingo Dam.

PROGRAM INTEGRATION: This program is one component of a long-term environmental monitoring study performed by the Philadelphia Electric Company on the Susquehanna River in southern Pennsylvania and Maryland.

PHILADELPHIA ELECTRIC COMPANY SUSQUEHANNA RIVER MONITORING STATIONS - WATER QUALITY COMPONENT

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
643	39 39 31	76 10 28	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	500 FT BELOW CONOWINGO DAM

PHILADELPHIA ELECTRIC COMPANY SUSQUEHANNA RIVER MONITORING STATIONS - WATER QUALITY COMPONENT



MONTOUR STEAM ELECTRIC STATION ENVIRONMENTAL MONITORING AND SURVEILLANCE PROGRAM - WATER QUALITY COMPONENT

PROGRAM DESCRIPTION: The Montour Steam Electric Station Environmental Monitoring and Surveillance Program (EMSP) - Water Quality Component is designed to qualitatively assess environmental impacts of this fossil-fueled generating station on the Chillisquaque Creek. Monitoring is conducted in the spring, summer and fall of each year at six stations. Water quality monitoring is one component of EMSP which also involves benthic macroinvertebrate and fish monitoring. In addition to this program monthly water quality monitoring is performed by the PP&L Chemistry Lab Monthly Program at three stations.

PROGRAM OBJECTIVE: To assess environmental impacts of the Montour Steam Electric Station on the Chillisquaque Creek which receives the power station effluents.

DATE INITIATED: 1981

COORDINATING AGENCY:
Pennsylvania Power and Light Company
Environmental Management Division
Allentown, Pennsylvania 18101-1179

FUNDING AGENCY: Pennsylvania Power and Light Company

PARTICIPATING AGENCIES:
Pennsylvania Power and Light Company (PP&L)
Pennsylvania Department of Environmental Resources (PADER)
Burke Environmental Consulting (BEC)

INVESTIGATORS:

Principal Investigator	William F. Skinner	PP&L
Principal Investigator	Robert B. Domermuth	PP&L
Principal Investigator	Ronald E. Hughey	PADER
Principal Investigator	Ronald A. Topel	PADER
Principal Investigator	John M. Burke	BEC

PARAMETERS:

Temperature
Dissolved Oxygen
Specific Conductance (field and lab)
pH (field and lab)
Alkalinity
Hardness
Nitrate
Nitrite
Ammonia
Phosphorus
Phosphates
Turbidity
Total Residue
Non-filterable Residue
Filterable Residue
Chloride
Flouride
Sulfate
Total Cyanide
Free Cyanide
Phenols
Total Aluminum
Dissolved Aluminum
Total Arsenic

Dissolved Arsenic
Total Calcium
Dissolved Calcium
Hexavalent Chromium
Total Copper
Dissolved Copper
Total Iron
Dissolved Iron
Total Magnesium
Dissolved Magnesium
Total Manganese
Dissolved Manganese
Total Nickel
Dissolved Nickel
Total Potassium
Total Selenium
Total Sodium
Total Zinc
Dissolved Zinc

STATIONS: There are six water quality EMSP stations located in the vicinity of Montour Steam Electric Station. There are also three Monthly Water Sampling Program stations located in the vicinity of Montour Steam Electric Station.

SAMPLE COLLECTION: Sampling for the EMSP is conducted on a seasonal basis (spring, summer and fall) and by the PP&L Chemistry Lab Monthly Program on a monthly basis. This sampling consists of single grab samples taken mid-channel and 25-30 centimeters below the surface. Industrial discharge samples are taken from the effluent, where the outfall enters the Creek. Following collection, appropriate samples are acid fixed and returned to PP&L and PADER laboratories for analysis.

PROGRAM INTEGRATION: The Montour Steam Electric Station Environmental Monitoring and Surveillance Program - Water Quality Component is one of three components of the EMSP program. The other components consist of seasonal benthic macroinvertebrate and fisheries monitoring at four creek locations.

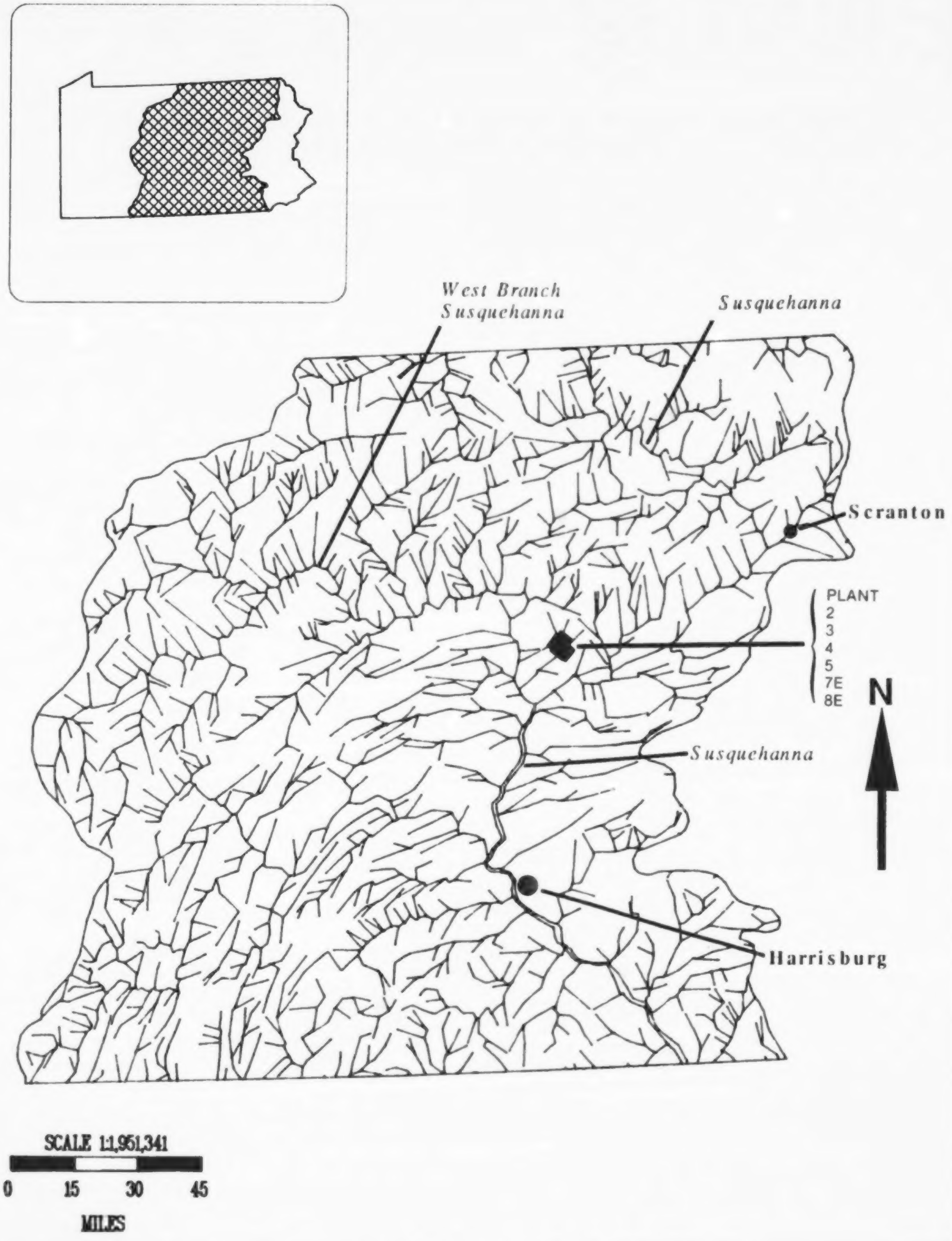
MONTOUR STEAM ELECTRIC STATION ENVIRONMENTAL MONITORING AND SURVEILLANCE STATIONS - WATER QUALITY COMPONENT

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
2	41 04 32	76 40 18	AFL	SUSQUEHANNA	LOWER WEST BRANCH SUSQUEHANNA	2050206	500-700 METERS UPSTREAM OF OUTF
3	41 04 11	76 40 32	AFL	SUSQUEHANNA	LOWER WEST BRANCH SUSQUEHANNA	2050206	50 METERS DOWNSTREAM OUTFALL 05
4	41 04 15	76 40 53	AFL	SUSQUEHANNA	LOWER WEST BRANCH SUSQUEHANNA	2050206	700-900 M ABOVE W. BRANCH-MAINS
5	41 03 44	76 40 51	AFL	SUSQUEHANNA	LOWER WEST BRANCH SUSQUEHANNA	2050206	450-600 M DOWNSTREAM RT 54 BRID
7E	41 04 14	76 40 27	AFL	SUSQUEHANNA	LOWER WEST BRANCH SUSQUEHANNA	2050206	OUTFALL 050
8E	41 04 19	76 40 26	AFL	SUSQUEHANNA	LOWER WEST BRANCH SUSQUEHANNA	2050206	OUTFALL 052
PLANT	41 03 48	76 39 57	AFL	SUSQUEHANNA	LOWER WEST BRANCH SUSQUEHANNA	2050206	MONTOUR STEAM ELECTRIC STATION

MONTOUR STEAM ELECTRIC STATION MONTHLY WATER SAMPLING PROGRAM STATIONS

2	41 04 32	76 40 18	AFL	SUSQUEHANNA	LOWER WEST BRANCH SUSQUEHANNA	2050206	200 METERS DOWNSTREAM EMSP STAT
3	41 04 11	76 40 32	AFL	SUSQUEHANNA	LOWER WEST BRANCH SUSQUEHANNA	2050206	LR 47015 BRIDGE 250 M DOWNSTREA
7E	41 04 14	76 40 27	AFL	SUSQUEHANNA	LOWER WEST BRANCH SUSQUEHANNA	2050206	OUTFALL 050

MONTOUR STEAM ELECTRIC STATION ENVIRONMENTAL MONITORING & SURVEILLANCE STATIONS - WATER QUALITY COMPONENT



SUSQUEHANNA STEAM ELECTRIC STATION MONITORING PROGRAM - WATER QUALITY COMPONENT

PROGRAM DESCRIPTION: The Susquehanna Steam Electric Station Monitoring Program - Water Quality Component is one part of an ongoing ecological study of the Susquehanna River in the vicinity of the Susquehanna Steam Electric Station (Susquehanna SES). Through this program sampling is conducted on a weekly basis from April through September and twice per month from October through March at three sites - one control site upriver from the Susquehanna SES intake and two sites downriver from the Susquehanna SES discharge diffuser.

PROGRAM OBJECTIVE: To evaluate the environmental impact of the Susquehanna Steam Electric Station by comparing preoperational (pre-1983) and operational data.

DATE INITIATED: 1971

COORDINATING AGENCY:

Pennsylvania Power and Light Company
2 North Ninth Street
Allentown, Pennsylvania 18101

Ecology III, Inc.
Susquehanna SES Biological Laboratory
R.D. 1
Berwick, Pennsylvania 18603

FUNDING AGENCY:

Pennsylvania Power and Light Company
Allegheny Electric Cooperative, Inc.

PARTICIPATING AGENCIES:

Pennsylvania Power and Light Company (PP&L)
Ecology III, Inc. (EIII)

INVESTIGATORS:

Program Director	Jerome S. Fields	PP&L
Principal Investigator	Walter J. Soya	EIII

PARAMETERS:

Level
Flow
Temperature
Dissolved Oxygen
Specific Conductance
pH
Total Alkalinity
Nitrate
Ammonia
Total Dissolved Solids
Total Suspended Solids
Turbidity
Aluminum
Chromium
Copper
Total Iron
Dissolved Iron
Manganese
Nickel
Sulfate
Zinc

STATIONS: There are three sites in the vicinity of the Susquehanna Steam Electric Station. The control site is 230 m upriver from the intake structure and 40 m from the west bank, the Bell Bend indicator site is 690 m downriver from the discharge diffuser and 40 m from the west bank, and the Bell Bend I indicator site (established in 1986) is 400 m downriver from the discharge diffuser and 55 m from the west bank.

SAMPLE COLLECTION: River temperature and level are recorded continuously on 7-day graphs at the Susquehanna SES Biological Laboratory 495 m upstream from the Susquehanna SES intake structure. Sensors for both recorders are located on the river bottom within 30 m of the bank. Depth is converted to river level above mean sea level. Flow is calculated from river level data, and daily means of temperature and level are determined by averaging hourly values, with maximum and minimum values tabulated.

Physicochemical data are collected at the three sites once per week from April through September and twice per month from October through March. All samples are collected between 1200 and 1400 h. Air, surface water temperature and prevailing weather conditions are recorded, and a grab sample and dissolved oxygen sample of surface water is taken while drifting over each site in a boat. Samples are immediately transported to the laboratory and analyzed for turbidity, DO, total alkalinity, pH, conductivity, sulfate and solids. Analyses are conducted within the holding time recommended by the U.S. EPA. Aliquots of each grab sample are fixed for analyses of total and dissolved iron.

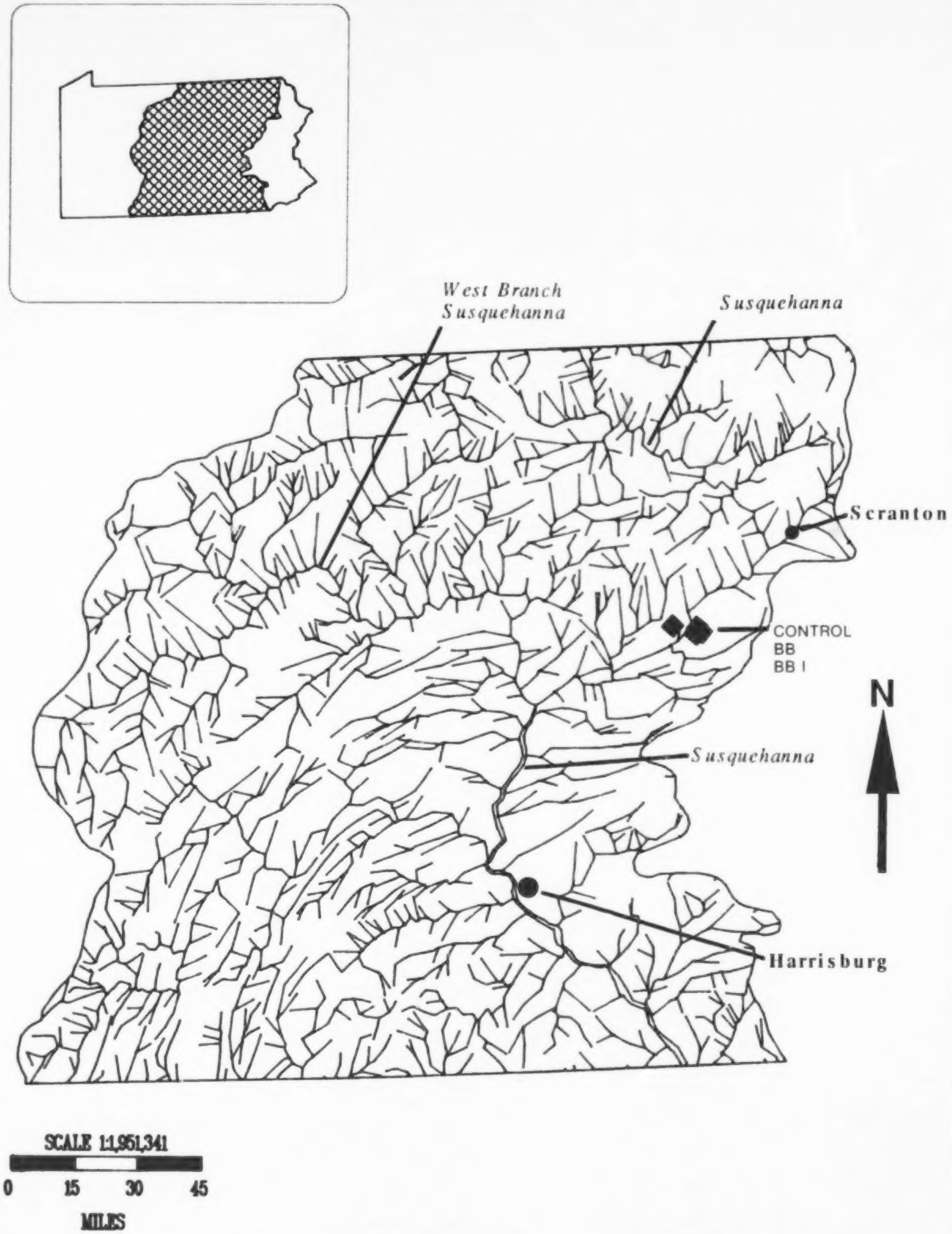
Physicochemical data at the Susquehanna SES control site are compared to data collected since 1973 and nonparametric statistics are used to determine if 1) year-to-year changes occurred in any parameter and 2) if the changes constitute a trend.

PROGRAM INTEGRATION: The Susquehanna Steam Electric Station Monitoring Program - Water Quality Component is one component of an ongoing ecological study of the Susquehanna River in the vicinity of the Susquehanna Steam Electric Station.

SUSQUEHANNA STEAM ELECTRIC STATION MONITORING STATIONS - WATER QUALITY COMPONENT

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
BB	41 04 47	76 07 53	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-LACKAWANNA	2050107	690M DOWNRIVER FROM DISCHARGE D
BB 1	41 05 04	76 07 53	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-LACKAWANNA	2050107	400M DOWNRIVER FROM DISCHARGE D
PLANT	41 07 05	76 08 39	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-LACKAWANNA	2050107	SUSQUEHANNA STEAM ELECTRIC STAT
SSES	41 05 25	76 07 48	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-LACKAWANNA	2050107	230M UPRIVER FROM INTAKE STRUCT

SUSQUEHANNA STEAM ELECTRIC STATION MONITORING STATIONS - WATER QUALITY COMPONENT



SAFE HARBOR WATER POWER CORPORATION WATER QUALITY MONITORING PROGRAM

PROGRAM DESCRIPTION: The Safe Harbor Water Power Corporation Water Quality Monitoring Program is performed through continuous, daily, and twice monthly monitoring (depending on parameter) of the river water near the Safe Harbor Plant. Although the filter treatment plant went into operation in 1931, monitoring was initiated in 1968. Monitoring records are retained for two to five years only.

PROGRAM OBJECTIVE: To remain in compliance with the NPDES discharge permits and to meet requirements of Pennsylvania Department of Environmental Resources.

DATE INITIATED: 1968 (Filter plant); 1976 (bimonthly samples)

COORDINATING AGENCY:
Safe Harbor Water Power Corporation
P.O. Box 97
Conestoga, Pennsylvania 17516

FUNDING AGENCIES: Safe Harbor Water Power Corporation

PARTICIPATING AGENCY: Safe Harbor Water Power Corporation (SHWPC)

INVESTIGATORS:

Vice President	Marshall J. Kaiser	SHWPC
Chief Operator	Frank W. Sellers	SHWPC

PARAMETERS:

Temperature
Dissolved Oxygen
pH
Alkalinity
Turbidity
Suspended Solids
Oil and Grease

STATIONS: There are three monitoring stations located at the Safe Harbor plant. One in the control room, one the governor floor and one the filter plant.

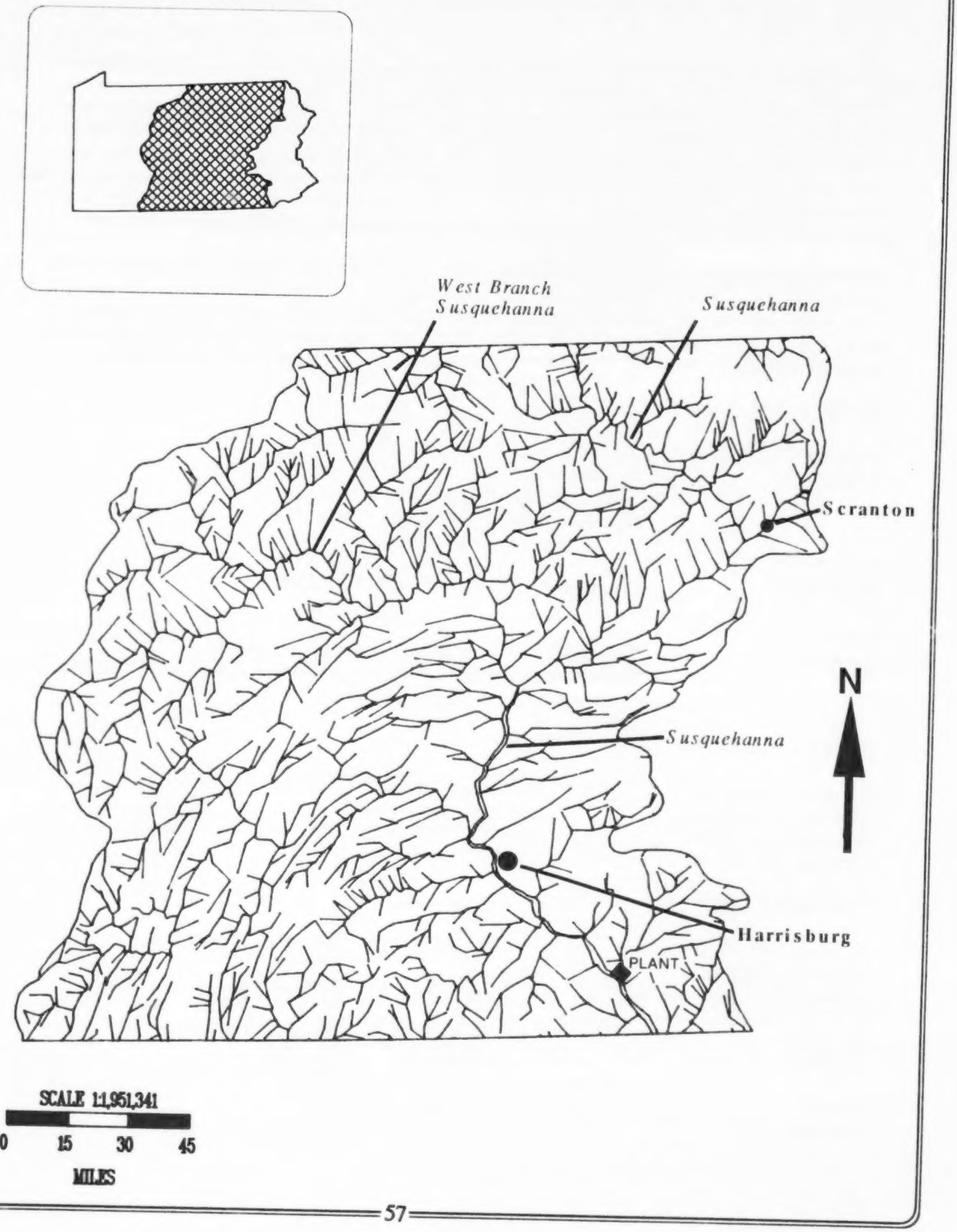
SAMPLE COLLECTION: In the control room, river water temperature is continuously recorded throughout the year, as is dissolved oxygen from May to the end of November. At the filter plant a daily testing of a raw water grab sample is performed for pH, alkalinity and turbidity. In governor floor monitoring, a grab sample of river water is collected on the first and third Monday of every month and the samples are sent to Lancaster Laboratories for analysis of total suspended solids, oil and grease.

PROGRAM INTEGRATION: N/A

SAFE HARBOR WATER QUALITY MONITORING STATIONS

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
PLANT	39 55 51	76 24 31	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	SAFE HARBOR WATER POWER CORPORA

SAFE HARBOR WATER POWER CORPORATION WATER QUALITY MONITORING STATIONS



BRUNNER ISLAND STEAM ELECTRIC STATION ENVIRONMENTAL MONITORING AND SURVEILLANCE PROGRAM - WATER QUALITY COMPONENT

PROGRAM DESCRIPTION: The Brunner Island Steam Electric Station Environmental Monitoring and Surveillance Program (BISES EMSP) - Water Quality Component was initiated to provide a vehicle for identifying trends in operational effects on receiving water based on site-specific field data. Monitoring is conducted annually during the summer and biennially or triennially during the spring and fall (dependent on funding), at nine stations. Water quality monitoring at BISES is one component of the EMSP which also involves benthic invertebrate and finfish monitoring. In addition to the EMSP program, monthly water quality monitoring is performed for the PP&L Chemistry Lab Monthly Program from the plant's raw water line.

PROGRAM OBJECTIVE: To determine existing and probable impacts associated with the power plant's operations. To document and predict aquatic environmental changes resulting from operational and facility changes. To provide data to document short- and long-term impacts of major pollution incidents, should they occur. To provide data to determine if observed impacts result from BISES operations, operations of others, natural phenomena or a combination.

DATE INITIATED: June 1981

COORDINATING AGENCY:

Pennsylvania Power and Light Company
Environmental Management Division
Allentown, Pennsylvania

FUNDING AGENCY:

Pennsylvania Power and Light Company

PARTICIPATING AGENCIES:

Pennsylvania Power and Light Company (PP&L)
Pennsylvania Department of Environmental Resources (PADER)
Burke Environmental Consulting (BEC)

INVESTIGATORS:

Principal Investigator	William F. Skinner	PP&L
Principal Investigator	Robert B. Domermuth	PP&L
Principal Investigator	Robert J. Schott	PADER
Principal Investigator	John M. Burke	BEC

PARAMETERS:

Temperature*
Dissolved Oxygen*
Conductivity (field* and lab)
pH (field* and lab)
Alkalinity
Hardness
Nitrate
Nitrite*
Ammonia †

Total Phosphorus*
Turbidity
Total Solids
Dissolved Solids
Suspended Solids
Chloride †
Flouride*
Sulfate
Total Cyanide*

Free Cyanide*
Phenols*
Aluminum, Total
Aluminum, Dissolved †
Arsenic, Total
Arsenic, Dissolved
Cadmium, Total †
Calcium, Total
Chromium, Total †
Copper, Total
Iron, Total
Magnesium, Total
Magnesium, Dissolved
Manganese, Total
Nickel, Total
Selenium, Total*
Sodium, Dissolved
Zinc, Total

* Environmental Monitoring & Surveillance Program only
† Monthly Ambient Water Quality Analysis only

STATIONS: There are nine EMSP stations at which water quality is monitored.

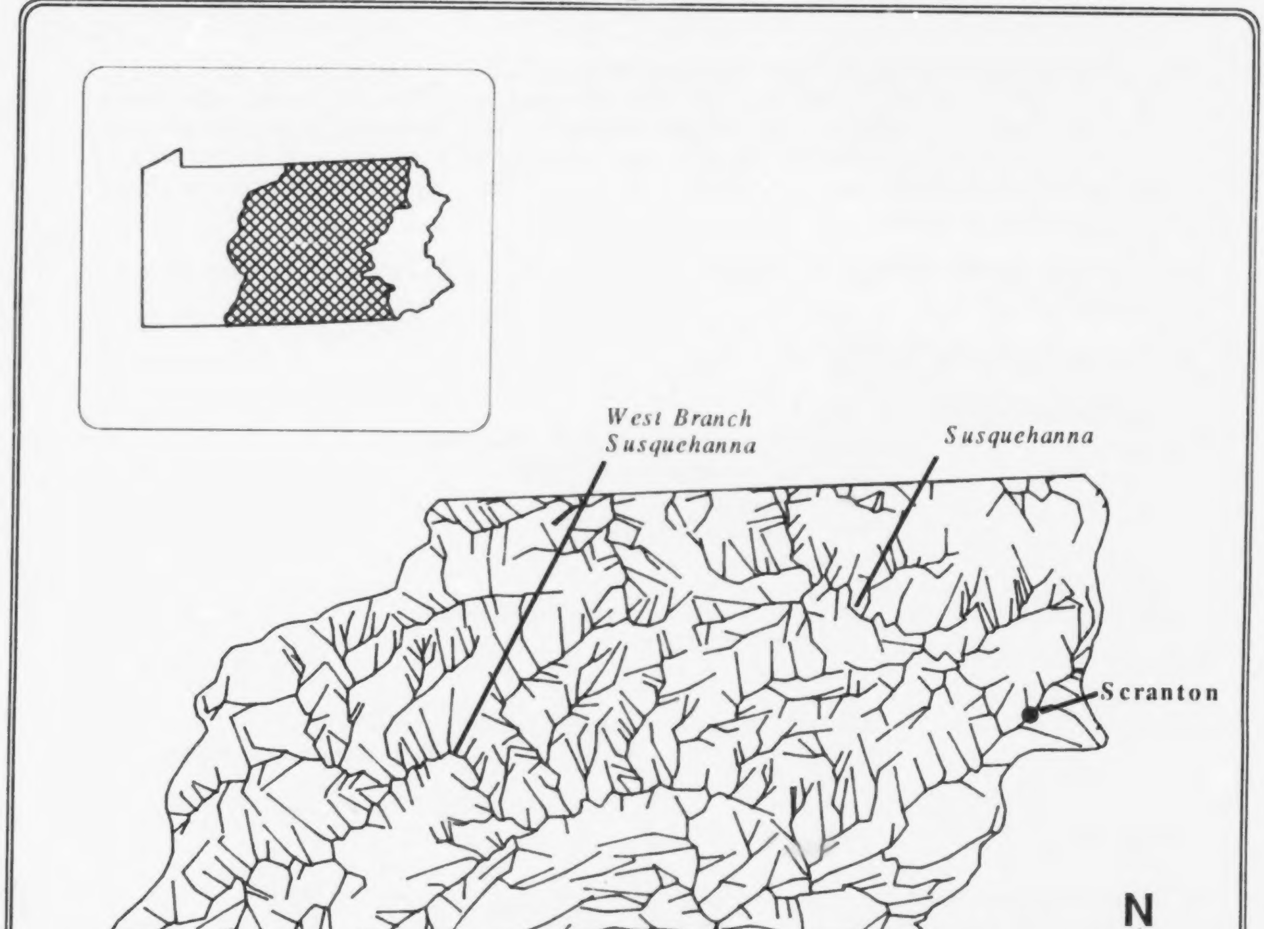
SAMPLE COLLECTION: Grab samples are collected annually in the summer at a point 10-20 m offshore and 20-25 cm below the water surface, Industrial discharge samples are collected from the effluent where the outfall enters the river approximately 20-25 cm below the water surface. Additional monthly ambient water quality grab samples are collected by the PP&L Chemistry Lab at the plant's raw water line in the plant. After collection, each sample is processed (filtered, acidified etc.) as appropriate for late analysis by PP&L or PADER Laboratories.

PROGRAM INTEGRATION: The Brunner Island Steam Electric Station Environmental Monitoring and Surveillance Program - Water Quality Component is one of three components of the BISES EMSP program. Other components include benthic macroinvertebrate and shorezone fisheries sampling.

BRUNNER ISLAND STEAM ELECTRIC STATION ENVIRONMENTAL MONITORING AND SURVEILLANCE STATIONS - WATER QUALITY COMPONENT

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
1	40 06 39	76 42 30	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	NORTHERN TIP OF BRUNNER ISLAND
10E	40 04 39	76 40 40	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	ASH BASIN 6 DISHCARGE POINT
3	40 05 26	76 41 13	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	BISES THERMAL EFFLUENT/SUSQ. RI
5A	40 04 39	76 40 38	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	DOWNSTREAM BISES AHS BASIN 6 OU
5B	40 04 43	76 40 26	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	150 M OFFSHORE BISES ASH BASIN
6	40 05 12	76 40 11	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	SOUTHERN TIP OF HALDEMAN ISLAND
7	40 04 00	76 39 52	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	SOUTHERN TIP OF ELY ISLAND
8	40 04 35	76 39 56	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	DOWNSTEAM CONROY CR/SUSQ. RIVER
9E	40 05 57	76 41 38	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	IWTB DISCHARGE POINT
PLANT	40 05 49	76 41 56	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	BRUNNER ISLAND STEAM ELECTRIC S
						2050306	

BRUNNER ISLAND STEAM ELECTRIC STATION ENVIRONMENTAL MONITORING AND SURVEILLANCE STATIONS - WATER QUALITY COMPONENT



MARYLAND NONTIDAL TRIBUTARY WATER QUALITY MONITORING PROGRAM

PROGRAM DESCRIPTION: The Maryland Nontidal Tributary Water Quality Monitoring Program consists of monthly sampling of 51 nontidal stations within the Bay basin, which belong to either Maryland's CORE or an older ambient program. The CORE network is a part of the U.S. EPA's national monitoring network. The older ambient program provides for more extensive statewide water quality information. Additional nontidal stations are routinely sampled as part of this early ambient program.

PROGRAM OBJECTIVES: To characterize ambient conditions and trends in water quality throughout the state.

DATE INITIATED: 1974

COORDINATING AGENCY:

Maryland Department of the Environment
Water Management Administration
2500 Broening Highway
Baltimore, Maryland 21224

FUNDING AGENCIES:

Maryland Department of the Environment
U.S. EPA Region III

PARTICIPATING AGENCIES:

Maryland Department of the Environment (MDE)
Maryland Department of Health and Mental Hygiene Laboratory (MD DHMH)

INVESTIGATORS:

Program Administrator	Peter Tinsley	MDE
Monitoring Program Chief	Morris Hennessey	MDE
Principal Investigator	J. Shermer Garrison	MDE

PARAMETERS:

Temperature
Dissolved Oxygen
Conductivity
Salinity
pH
Secchi Depth
Total Alkalinity
Total Acidity
Total Kjeldahl Nitrogen
Nitrate
Nitrite
Ammonia
Total Phosphorus
Dissolved Inorganic Phosphorus
Total Organic Carbon
Total Suspended Solids
Turbidity
Chlorophyll *a*
Phaeophytin
Total Coliform
Fecal Coliform
Iron
Sulfate

STATIONS: There are 51 stations located throughout Maryland's tributaries.

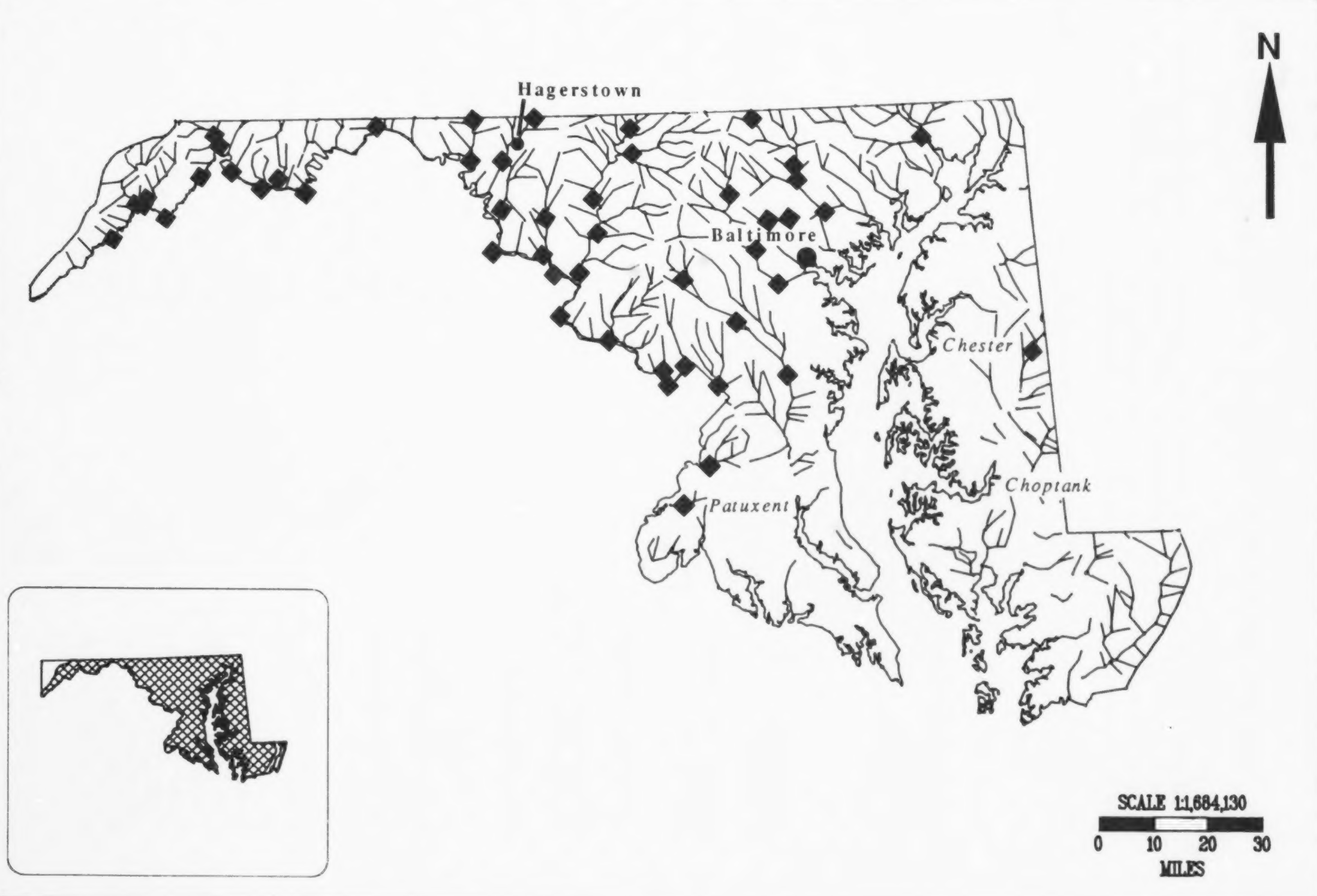
SAMPLE COLLECTION: Samples are collected monthly at all 28 CORE stations and as time permits from the 23 other stations. Samples are collected from the surface using a bucket grab. Temperature, dissolved oxygen, conductivity, pH, and secchi depth are measured at each station. Meteorological and other environmental conditions are also noted. Chlorophyll samples are collected on filter pads and sample aliquots are collected in plastic sample bottles, stored on ice and transported to the laboratory for analysis.

PROGRAM INTEGRATION: These stations are a subset of Maryland's CORE and other long-term monitoring networks which monitor both the tidal and nontidal tributaries, and the mainstem of the Bay. CORE stations are part of the EPA's national water quality monitoring network.

MARYLAND NONTIDAL TRIBUTARY WATER QUALITY MONITORING STATIONS

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
ANA0082	38 56 20	76 56 38	BFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	ANACOSTIA R. AT BLADENSBURG RD.
ANT0044	39 27 01	77 43 55	AFL	POTOMAC	CONOCOCHEAGUE-OPEQUON	2070004	ANTIETAM CR BURN. BR. AT GAG. S
ANT0203	39 35 40	77 42 40	AFL	POTOMAC	CONOCOCHEAGUE-OPEQUON	2070004	ANTIETAM CREEK BRG. POFFENBURGE
ANT0366	39 42 57	77 36 31	AFL	POTOMAC	CONOCOCHEAGUE-OPEQUON	2070004	ANTIETAM CR GAG. ST. W RT60
BDK0000	39 40 12	78 47 27	AFL	POTOMAC	NORTH BRANCH POTOMAC	2070002	BRADDOCK RUN US40 AND BRADDOCK
BPC0035	39 36 43	77 14 15	AFL	POTOMAC	MONOCACY	2070009	BIG PIPE BRIDGE AT MD RT 194 G
CAC0031	39 19 59	77 34 40	AFL	POTOMAC	MIDDLE POTOMAC CATOCTIN	2070008	CATOCTIN CR. MOUTH AT BR. ON RT
CAC0148	39 25 32	77 33 33	AFL	POTOMAC	MIDDLE POTOMAC CATOCTIN	2070008	CATOCTIN CR. BR. ON RT.17 AT GA
CHO0626	38 59 49	75 47 12	BFL	EASTERN SHORE	CHOPTANK	2060005	CHOPTANK R AT READ BR. NR SEWEL
CJB0005	38 58 25	77 08 57	AFL	POTOMAC	MIDDLE POTOMAC CATOCTIN	2070008	CABIN JOHN BRANCH AT MCARTHUR B
CON0005	39 36 11	77 49 19	AFL	POTOMAC	CONOCOCHEAGUE-OPEQUON	2070004	CONOCOCHEAGUE CREEK MD. 68 BRID
CON0180	39 42 57	77 49 31	AFL	POTOMAC	CONOCOCHEAGUE-OPEQUON	2070004	CONOCO. CR AT GAG. ST. 0.7MI AB
DER0015	39 37 22	76 09 53	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	DEER CREEK BRIDGE ON STAFFORD B
GEO0009	39 29 37	79 02 42	AFL	POTOMAC	NORTH BRANCH POTOMAC	2070002	GEORGES CR @FRANKLIN GAGE ST
GUN0125	39 25 32	76 31 45	AFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	FALLS BRG. AT CROMWELL BR. RD.
GUN0258	39 32 59	76 38 09	AFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	GUNPOW. F. 4 END GLENCO RD
GUN0476	39 41 21	76 46 51	AFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	GUNPOWDER FALLS BRIDGE AT GUNPO
GWN0115	39 20 33	76 46 36	AFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	GWYNNS F. BR ESSEX. RD VILLA NO
JON0184	39 23 36	76 59 44	AFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	JONES FALLS NEAR BR. AT SORRENT
MAT0078	38 35 18	77 07 08	BFL	POTOMAC	LOWER POTOMAC	2070011	MATTAWOMAN CRK AT MD RT 225
MON0020	39 16 17	77 26 30	AFL	POTOMAC	MONOCACY	2070009	MONACACY RIVER BRIDGE ON MD RT
MON0155	39 23 16	77 22 53	AFL	POTOMAC	MONOCACY	2070009	MONOCACY RIVER BRIDGE REICHS FO
MON0269	39 28 49	77 23 23	AFL	POTOMAC	MONOCACY	2070009	MONCACY RIVER BRIDGE ON BIGGS F
MON0528	39 40 47	77 14 10	AFL	POTOMAC	MONOCACY	2070009	MONOCACY R BRIDE BRG MD RT140
NBP0023	39 32 13	78 36 41	AFL	POTOMAC	NORTH BRANCH POTOMAC	2070002	N BRANCH POTOMAC BRG. AT OLDTOW
NBP0103	39 34 57	78 43 54	AFL	POTOMAC	NORTH BRANCH POTOMAC	2070002	N BR. POT. W INTER. MOOR. RD AN
NBP0326	39 34 00	78 50 21	AFL	POTOMAC	NORTH BRANCH POTOMAC	2070002	N BR. POT. GAG. ST. AT PINTO
NBP0461	39 26 41	78 58 19	AFL	POTOMAC	NORTH BRANCH POTOMAC	2070002	N BRANCH POTOMAC AT BRIDGE ON R
NBP0534	39 28 45	79 04 06	AFL	POTOMAC	NORTH BRANCH POTOMAC	2070002	N. BR. POT. AT BLOOM. UPST. CON
NBP0689	39 23 21	79 10 47	AFL	POTOMAC	NORTH BRANCH POTOMAC	2070002	N BR. POT. .6 MI FROM MD38 AT K
NPA0165	39 28 57	76 52 56	AFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	N BRAN. PATAPSCO BR. AT MD RT91
PAT0176	39 13 03	76 42 20	BFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	PATAPSCO R AT BRG ON WASHING. B
PAT0285	39 18 44	76 47 33	AFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	PATAPSCO RIVER AT HOLLOFIELD G
PIS0033	38 41 54	76 59 13	BFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	PISCATAWAY CREEK AT MD RT 210
POT1184	38 56 53	77 07 39	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	POTOMAC RIVER ABOVE LITTLE FALL
POT1471	39 09 16	77 31 18	AFL	POTOMAC	MIDDLE POTOMAC CATOCTIN	2070008	POTOMAC RIVER EAST TERMINUS OF
POT1472	39 09 19	77 31 21	AFL	POTOMAC	MIDDLE POTOMAC CATOCTIN	2070008	POTOMAC RIVER WEST. TERM. OF WH
POT1595	39 16 08	77 31 22	AFL	POTOMAC	MIDDLE POTOMAC CATOCTIN	2070008	POTOMAC RIVER EAST END OF BR. A
POT1596	39 16 19	77 32 53	AFL	POTOMAC	MIDDLE POTOMAC CATOCTIN	2070008	POTOMAC RIVER WEST SIDE PT OF R
POT1830	39 26 06	77 48 11	AFL	POTOMAC	CONOCOCHEAGUE-OPEQUON	2070004	POT. R AT GAG. ST. BELOW RT.34
POT2386	39 41 50	78 10 36	AFL	POTOMAC	CONOCOCHEAGUE-OPEQUON	2070004	POT. R GAG. ST. 0.5 MI BELOW RT
POT2766	39 37 19	78 27 17	AFL	POTOMAC	CACAPON-TOWN	2070003	POTOMAC R BR. RT.51 NEAR PAW PA
PXT0603	38 57 21	76 41 36	BFL	PATUXENT	PATUXENT	2060006	PATUX. R MIDSTREAM AT US RT 50
PXT0809	39 07 00	76 52 31	BFL	PATUXENT	PATUXENT	2060006	PATUX. R GAG. ST. BEL ROCKY GOR
PXT0972	39 14 21	77 03 23	AFL	PATUXENT	PATUXENT	2060006	PATUX. R AT BRG. MD RT.97 UNITY
RCM0111	38 59 34	77 03 48	AFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	ROCK CREEK AT MD RT 410
SAV0000	39 28 49	79 04 05	AFL	POTOMAC	NORTH BRANCH POTOMAC	2070002	SAVAGE RIVER AT MD135
SEN0008	39 04 46	77 20 24	AFL	POTOMAC	MIDDLE POTOMAC CATOCTIN	2070008	SENECA CREEK BRIDGE ON MD RTE 1
SUS0109	39 39 21	76 10 28	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	SUSQUEHANNA RIVER AT CONOWINGO
TOW0030	39 33 11	78 33 13	AFL	POTOMAC	CACAPON-TOWN	2070003	TOWN CREEK @GAGE NEAR OLDTOWN
WIL0013	39 39 41	78 46 49	AFL	POTOMAC	NORTH BRANCH POTOMAC	2070002	WILLS CR. GAG. ST. AT BRADDOCK

MARYLAND NONTIDAL TRIBUTARY WATER QUALITY MONITORING STATIONS



DELAWARE WATER QUALITY MONITORING NETWORK

PROGRAM DESCRIPTION: The Delaware Water Quality Monitoring Network monitors statewide including various rivers and creeks in the Chesapeake Bay Basin . Monitoring at these locations may not be as frequent as in other areas of the state because sites surrounding the waterways are not highly populated or impacted by development.

PROGRAM OBJECTIVES: To provide data for long-term trend analyses and use attainment, evaluation and analysis for NPDES permitting, and problem solving for nonpoint source dischargers.

DATE INITIATED: Early 1970s with major revisions in 1983 and 1989

COORDINATING AGENCY:
Delaware Department of Natural Resources & Environmental Control
Division of Water Resources
Water Quality Management Branch
89 Kings Highway, P.O. Box 1401
Dover, Delaware 19903

FUNDING AGENCY:
Delaware Department of Natural Resources & Environmental Control
U.S. EPA Region III

PARTICIPATING AGENCIES:
Delaware Department of Natural Resources & Environmental Control (DNREC)

INVESTIGATORS:

Monitoring Coordinator	John Davis	DNREC
Quality Assurance Coordinator	Dick Gardner	DNREC

PARAMETERS:

Temperature
Dissolved Oxygen
Percentage Saturation*
Secchi+
Specific Conductivity+
Salinity+*
pH
Alkalinity
Acidity
Hardness
Total Nitrogen
Total Kjeldahl Nitrogen+
Dissolved Organic Nitrogen
Nitrate
Nitrite
Ammonium
Total Phosphorus
Total Organic Carbon+
Total Suspended Solids+
Turbidity
Biological Oxygen Demand
Chloride
Enterococcus
F. Streptococcus++
Phenols+++

Special Annual Parameters:
VOA's
Iron
Copper
Manganese
Chromium
Zinc
Lead
Nickel
Cadmium

Phenols
Total Dissolved Solids+++

Diazinon
Methylparathion

Pesticides:

* Calculated from directly measured parameters
+ Nanticoke River (CORE)
++ Chesapeake Drainage System and Pocomoke River
+++ Chesapeake Drainage System

STATIONS: There are 21 stations within the Delaware water quality network which drain into the Chesapeake. These are located on the Choptank, Nanticoke and Pocomoke Rivers, the C&D Canal, Broad Creek, Marshyhope Creek and in the Chesapeake Drainage System which contains the headwaters of the Chester and Sassafras Rivers and Bohemia Creek.

SAMPLE COLLECTION: Samples are collected monthly at the Chesapeake Drainage System (112011, 112021, 112031), and at the CORE station (304021) in the Nanticoke. They are collected quarterly in the Choptank (207011, 207021, 207031, 207041), and quarterly and monthly June through August, in Broad Creek and the rest of the Nanticoke (307021, 307031). Samples are taken quarterly except in the winter, November to March, in the C&D Canal (108031), semi-annually in the Pocomoke River (313011), and annually in the Marshyhope Creek (302011, 302021).

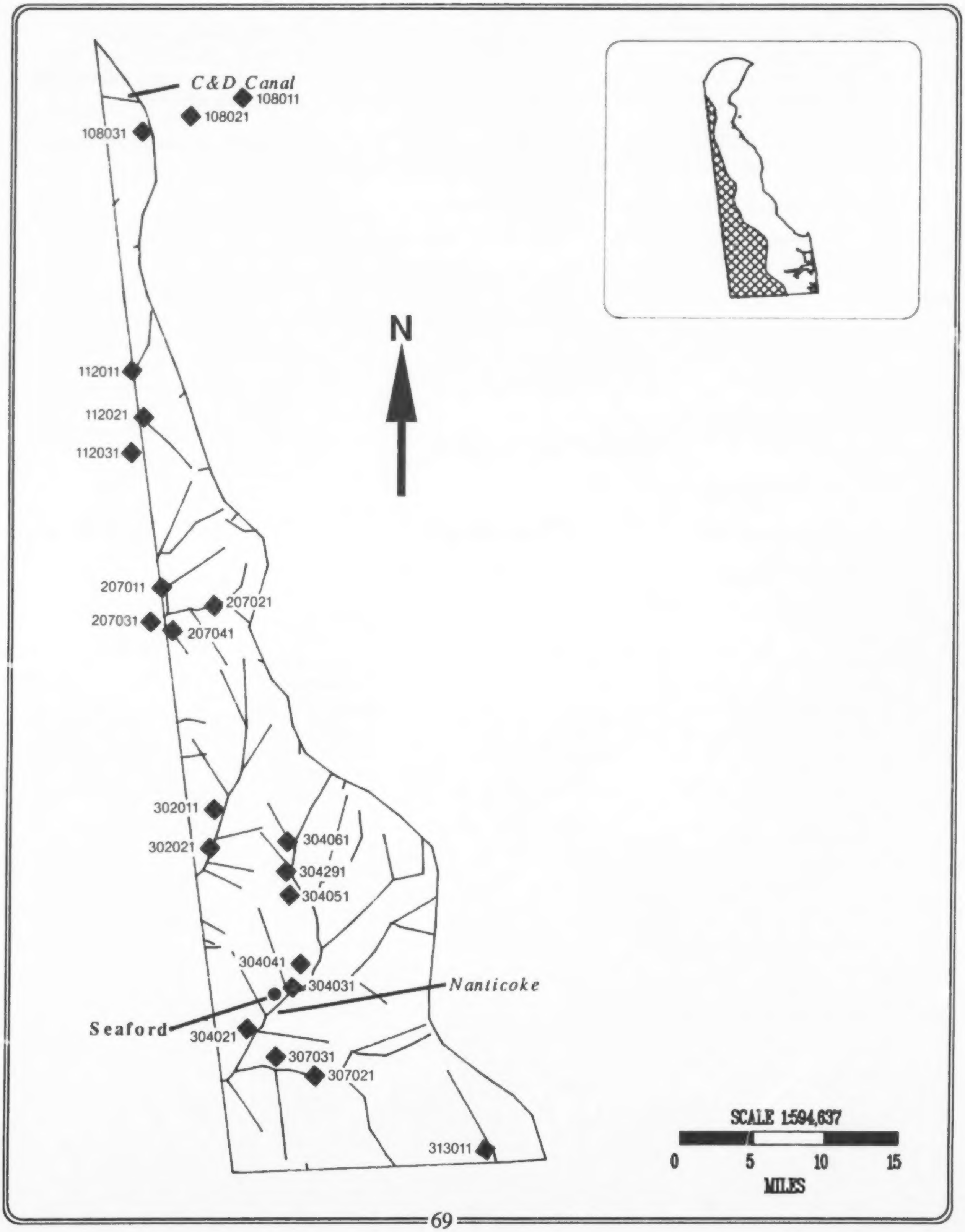
All samples are surface grab samples collected in a stainless steel bucket. Dissolved Oxygen is fixed in the field, metals are acidified and the samples (except DO) are chilled on ice.

PROGRAM INTEGRATION: These stations which drain into the Chesapeake Bay are part of a larger statewide monitoring network. The CORE station is one of the EPA's national water quality monitoring sites.

DELAWARE WATER QUALITY MONITORING STATIONS

STATION NAME (S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
108031	39 32 32	75 43 32	BFL	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	SUMMIT BRIDGE
112011	39 18 00	75 45 15	BFL	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	DELANEY CORNER
112021	39 14 50	75 44 56	BFL	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	COUNTY RD.95
112031	39 13 07	75 45 40	BFL	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	BLANCA ROAD, GRAVELLY RUN AT MD
207011	39 04 04	75 44 25	BFL	EASTERN SHORE	CHOPTANK	2060005	ROAD 207 BRIDGE, MUD HILL
207021	39 02 54	75 40 09	BFL	EASTERN SHORE	CHOPTANK	2060005	ROAD 208 BRIDGE, COW MARSH CREE
207031	39 01 40	75 45 21	BFL	EASTERN SHORE	CHOPTANK	2060005	DEL. RT 10 (MD RT. 287)
207041	39 01 18	75 44 02	BFL	EASTERN SHORE	CHOPTANK	2060005	DEL. RT. 10, MEREDITH BRANCH
302011	38 49 52	75 41 14	BFL	EASTERN SHORE	NANTICOKE	2060008	DEL. RT. 16 BRIDGE/ADAMSVILLE
302021	38 47 40	75 41 38	BFL	EASTERN SHORE	NANTICOKE	2060008	DEL. RT. 404 BRIDGE/WOODE
304021	38 36 04	75 39 20	ET-6	EASTERN SHORE	NANTICOKE	2060008	WOODLAND FERRY, PIER ON WEST BA
304031	38 38 25	75 36 32	BFL	EASTERN SHORE	NANTICOKE	2060008	RT. 13 BRIDGE, SEAFORD
304041	38 39 55	75 34 55	BFL	EASTERN SHORE	NANTICOKE	2060008	MIDDLEFORD BRIDGE
304051	38 44 40	75 35 32	BFL	EASTERN SHORE	NANTICOKE	2060008	BRIDGEVILLE BRANCH
304061	38 47 36	75 35 24	BFL	EASTERN SHORE	NANTICOKE	2060008	GREENWOOD/CAT BRANCH, U.S. RT.
304291	38 45 25	75 35 25	BFL	EASTERN SHORE	NANTICOKE	2060008	RD. 600, RIVER MILE 57.8
307021	38 33 28	75 34 31	BFL	EASTERN SHORE	NANTICOKE	2060008	WEST BRIDGE, ROAD 28A
307031	38 34 07	75 37 12	BFL	EASTERN SHORE	NANTICOKE	2060008	BETHEL BRIDGE, RD 493
313011	38 27 40	75 21 10	BFL	EASTERN SHORE	POCOMOKE	2060009	POCOMOKE AT RD. 419

DELAWARE WATER QUALITY MONITORING STATIONS



VIRGINIA AMBIENT WATER QUALITY MONITORING PROGRAM

PROGRAM DESCRIPTION: The Virginia Ambient Water Quality Monitoring Program consists of 224 stations in the Chesapeake Bay basin which are sampled on a monthly basis. The program provides data for periodic assessment and review of state waters and provides information on the quality of these waters for use in developing planning and management activities.

PROGRAM OBJECTIVES: To provide water quality data representative of conditions found in Virginia waters and to augment the existing historical data base.

DATE INITIATED: 1968

COORDINATING AGENCY:

Virginia Water Control Board
2111 North Hamilton Street
Richmond, Virginia 23230

FUNDING AGENCIES:

Commonwealth of Virginia
U.S. EPA Region III

PARTICIPATING AGENCIES:

Virginia Water Control Board

INVESTIGATOR:

Principle Investigator	Charlie Morgan	VWCB

PARAMETERS:

Temperature
Salinity*
Conductivity *
pH
Dissolved Oxygen
Secchi Depth*
Alkalinity*
Hardness*
Nitrate
Nitrite
Kjeldahl Nitrogen
Ammonia
Total Phosphorus
Dissolved Inorganic Phosphorus
Biological Oxygen Demand-5
Chemical Oxygen Demand*
Total Organic Carbon
Total Solids
Total Suspended Solids*
Dissolved Solids*
Fixed Solids*
Volatile Solids*
Chlorophyll *a**+
Chloride*
Total Coliform*
Fecal Coliform*+
Herbicides*+
Pesticides*+
Antimony*+
Arsenic*+
Beryllium*+
Cadmium*+
Calcium*
Chromium*+
Copper*+
Iron*+
Lead*+
Manganese*+
Mercury*+
Nickel*+
Selenium*+
Thallium*+

* At selected stations
+ At variable frequencies

STATIONS: There are 224 stations throughout the nontidal and tidal portion of Virginia's Chesapeake Bay basin.

SAMPLE COLLECTION: Stations are visited monthly throughout the year. Water quality samples are grab samples taken with a bucket.

PROGRAM INTEGRATION: In addition to water quality, sediment sampling is conducted with water quality sampling on an annual basis at selected stations and fish tissue sampling is done at selected stations as part of the EPA's national CORE water quality monitoring network.

VIRGINIA AMBIENT WATER QUALITY MONITORING STATIONS

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
ABR000.56	39 10 56	78 05 06	AFL	POTOMAC	CONOCOCHEAGUE-OPEQUON	2070004	ABRAMS CR. AT RT.7 BRIDGE
ACO001.78	38 42 21	77 09 38	BFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	ACCOTINK CR. AT FORT BELVOIR
ALM000.42	37 30 24	77 24 44	BFL	JAMES	LOWER JAMES	2080206	ALMOND CR. AT RT. 5
APP001.53	37 18 41	77 17 49	TF-5	JAMES	LOWER JAMES	2080206	APPOMATOX R. AT RT. 16, HOPEWEL
APP012.79	37 13 56	77 25 05	AFL	JAMES	APPOMATTOX	2080207	APPOMATOX R. AT RT. 36
APP050.23	37 21 17	77 51 07	AFL	JAMES	APPOMATTOX	2080207	APPOMATTOX R. AT RT. 360
APP110.93	37 18 26	78 23 21	AFL	JAMES	APPOMATTOX	2080207	APPOMATTOX R. AT RT. 45
APP118.04	37 20 04	78 28 03	AFL	JAMES	APPOMATTOX	2080207	APPOMATTOX R. AT RT. 15
ASH001.26	37 19 07	77 22 23	BFL	JAMES	APPOMATTOX	2080207	ASHTON CR. AT RT. 746
AUA010.26	38 28 27	77 23 42	BFL	POTOMAC	LOWER POTOMAC	2070011	AQUIA CR. AT RT. 1
BBY002.88	36 53 51	76 02 16	BFL	EASTERN SHORE	LYNNHAVEN-POQUOSON	2080108	BROAD BAY CREEK AT BUOY 16
BCC004.71	38 04 10	79 53 50	AFL	JAMES	UPPER JAMES	2080201	BACK CR. OFF RT. 39
BEN001.42	36 51 47	76 28 45	BFL	JAMES	LYNNHAVEN-POQUOSON	2080108	BENNETT CREEK
BKW005.57	37 24 57	79 11 09	AFL	JAMES	MIDDLE JAMES-BUFFALO	2080203	RT. 105 BRIDGE
BLP000.79	38 11 43	79 34 14	AFL	JAMES	UPPER JAMES	2080201	BULLPASTURE R. AT RT.614 BRIDGE
BLY000.65	37 17 19	77 15 33	BFL	JAMES	LOWER JAMES	2080206	BAILEY CR. AT RT. 10
BRB002.15	39 02 48	77 25 58	AFL	POTOMAC	MIDDLE POTOMAC CATOCTIN	2070008	BROADRUN AT RT. 7
BRK004.14	37 05 45	76 24 02	BFL	JAMES	LYNNHAVEN-POQUOSON	2080108	BRICK KILN CREEK
BRO000.15	36 50 28	76 13 36	LE-5	JAMES	LOWER JAMES	2080206	BROAD CREEK
BRO001.35	36 51 23	76 13 43	BFL	JAMES	LYNNHAVEN-POQUOSON	2080108	RT. 58 BRIDGE
BRU020.12	38 46 50	77 40 23	AFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	BROAD RUN AT RT. 29-211
BUF002.10	37 36 36	78 55 22	AFL	JAMES	MIDDLE JAMES-BUFFALO	2080203	BUFFALO R.AT RT.657 BRIDGE
BUF013.53	37 36 19	79 01 34	AFL	JAMES	MIDDLE JAMES-BUFFALO	2080203	BUFFALO R. AT RT.29 BRIDGE
BUL010.28	38 48 11	77 26 59	AFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	BULL RUN AT RT. 28
CAE000.25	38 41 56	77 54 26	AFL	RAPPAHANNOCK	RAPIDAN-UPPER RAPPAHANNOCK	2080103	CARTER RUN AT RT. 688
CAM000.95	38 48 23	77 06 35	BFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	CAMERON RUN BEHIND CAMERO STATI
CAT023.83	37 28 00	80 00 20	AFL	JAMES	UPPER JAMES	2080201	CATAWBA CR. AT RT. 779 BRIDGE
CAX004.57	39 15 18	77 34 36	AFL	POTOMAC	MIDDLE POTOMAC CATOCTIN	2070008	CATOCTIN CR. AT RT. 663
CCH000.00	37 15 53	76 01 36	CB-7	CHESBAY	LOWER CHESAPEAKE BAY	2080101	CAPE CHARLES HARBOR AT MOUTH OF
CDR013.29	39 04 40	78 19 34	AFL	POTOMAC	NORTH FORK SHENANDOAH	2070006	CEDAR CR. AT RT.628 BRIDGE
CFP004.69	37 59 16	79 26 38	AFL	JAMES	MAURY	2080202	CALF PASTURE R. AT RT. 42 BRIDG
CHK002.17	37 15 48	76 52 39	RET-5	JAMES	LOWER JAMES	2080206	CHICKAHOMINY R. AT RT. 5
CHK008.28	37 20 32	76 52 23	RET-5	JAMES	LOWER JAMES	2080206	SHIPYARD LANDING JAMES CITY COU
CHK023.64	37 24 05	76 56 13	RET-5	JAMES	LOWER JAMES	2080206	CHICKAHOMINY R. AT WALKER DAM
CHK032.77	37 25 44	77 02 20	BFL	JAMES	LOWER JAMES	2080206	CHICKAHOMINY R. AT RT. 15
CHK035.26	37 26 09	77 03 39	BFL	JAMES	LOWER JAMES	2080206	CHICKAHOMINY R. AT RT. 61
CHK062.57	37 35 43	77 22 57	BFL	JAMES	LOWER JAMES	2080206	CHICKAHOMINY R. AT RT. 36
CHK076.59	37 42 02	77 30 49	AFL	JAMES	LOWER JAMES	2080206	CHICKAHOMINY R.AT RT. 625
CHO003.65	38 31 12	77 21 42	BFL	POTOMAC	LOWER POTOMAC	2070011	CHOPAWAMSIC CR. AT RT. 1
CKT000.19	36 55 16	76 29 43	LE-5	JAMES	LOWER JAMES	2080206	RED BOUY 8 AT PIKE PT
CKT000.84	36 54 47	76 30 11	LE-5	JAMES	LOWER JAMES	2080206	RT. 17 BRIDGE
CKT001.63	36 54 36	76 30 56	LE-5	JAMES	LOWER JAMES	2080206	WHITE BOAT HOUSE
CKT002.22	36 54 28	76 31 34	BFL	JAMES	LOWER JAMES	2080206	MOUTH OF BOWERS CREEK
CKT003.05	36 53 40	76 31 50	LE-5	JAMES	LOWER JAMES	2080206	GRAY HOUSE
CLB000.50	38 18 10	77 26 53	BFL	RAPPAHANNOCK	LOWER RAPPAHANNOCK	2080104	CLAIBORNE RUN AT RT. 3 ACCESS
CLB003.96	38 20 44	77 27 11	BFL	RAPPAHANNOCK	LOWER RAPPAHANNOCK	2080104	CLAIBORNE RUN AT RT. 627
CRE002.37	37 58 06	79 55 11	AFL	JAMES	UPPER JAMES	2080201	CEDAR CR. AT RT.605 BRIDGE
CRG000.23	37 38 54	79 49 04	AFL	JAMES	UPPER JAMES	2080201	CRAIG CR. AT RT.615 BRIDGE
CRO000.43	38 57 17	78 11 26	AFL	POTOMAC	SHENANDOAH	2070007	CROOKED CR. AT RIVERTON CORPORA
CRR003.38	37 41 46	76 28 24	LE-3	RAPPAHANNOCK	LOWER RAPPAHANNOCK	2080104	CARROTOMAN R. AT RED BUOY 6
CRY000.59	36 52 44	75 59 38	BFL	JAMES	LYNNHAVEN-POQUOSON	2080108	CHRYSTAL LAKE AT MIDLAKE
CST012.55	38 07 43	78 59 41	AFL	POTOMAC	SOUTH FORK SHENANDOAH	2070005	CHRISTIAN CREEK AT RT. 794 BRID
CWP002.58	37 47 31	79 45 34	AFL	JAMES	UPPER JAMES	2080201	COWPASTURE R. AT RT. 633 BRIDGE
DIF000.86	38 58 33	77 14 46	AFL	POTOMAC	MIDDLE POTOMAC CATOCTIN	2070008	DIFFICULT RUN AT RT. 193
EBE000.07	36 50 28	76 17 11	LE-5	JAMES	LOWER JAMES	2080206	E. BRANCH ELIZABETH RIVER
EBL000.01	36 53 12	76 04 25	CB-8	CHESBAY	LOWER CHESAPEAKE BAY	2080101	EAST BRANCH LYNNHAVEN RIVER AT
EBL001.15	36 52 25	76 04 25	CB-8	CHESBAY	LOWER CHESAPEAKE BAY	2080101	EAST BRANCH LYNNHAVEN RIVER AT
EBL002.54	36 51 20	76 03 50	CB-8	CHESBAY	LOWER CHESAPEAKE BAY	2080101	EAST BRANCH LYNNHAVEN RIVER AT
ELI002.00	36 54 12	76 20 00	LE-5	JAMES	LOWER JAMES	2080206	ELIZABETH RIVER MAINSTEM
FAC000.85	37 26 24	77 26 21	BFL	JAMES	LOWER JAMES	2080206	FALLING CR. AT RT. 1
FAC012.96	37 26 56	77 33 52	AFL	JAMES	LOWER JAMES	2080206	FALLING CR. AT RT. 360
FLG000.76	37 48 00	77 28 21	AFL	YORK	PAMUNKEY	2080106	FALLING CREEK AT RT. 1
FOU000.19	38 50 28	77 02 54	BFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	FOUR MILE RUN AT THE GEORGE WAS
GIL000.42	37 31 20	77 24 41	BFL	JAMES	MIDDLE JAMES-WILLIS	2080205	GILLIE CR. AT MOND
GOO002.38	39 05 08	77 30 41	AFL	POTOMAC	MIDDLE POTOMAC CATOCTIN	2070008	GOOSE CR. AT RT. 7
GOO011.23	39 01 06	77 34 36	AFL	POTOMAC	MIDDLE POTOMAC CATOCTIN	2070008	GOOSE CR. AT RT. 621

VIRGINIA AMBIENT WATER QUALITY MONITORING STATIONS (Cont'd)

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
GOO022.44	39 00 48	77 42 01	AFL	POTOMAC	MIDDLE POTOMAC CATOCTIN	2070008	GOOSE CR. AT RT. 734
GRK000.57	37 26 40	77 26 13	BFL	JAMES	LOWER JAMES	2080206	GRINDALL CR.
GRT001.70	38 38 34	77 51 35	AFL	RAPPAHANNOCK	RAPIDAN-UPPER RAPPAHANNOCK	2080103	GREAT RUN AT RT. 687
HAL000.57	38 17 31	77 27 27	BFL	RAPPAHANNOCK	LOWER RAPPAHANNOCK	2080104	HAZEL RUN AT RT. 17-2
HAZ007.16	37 29 06	79 09 57	AFL	JAMES	MIDDLE JAMES-BUFFALO	2080203	RT. 130 BRIDGE
HAZ009.58	38 35 35	77 57 57	AFL	RAPPAHANNOCK	RAPIDAN-UPPER RAPPAHANNOCK	2080103	HAZEL R. AT RT. 229
HAZ018.29	38 35 54	78 03 43	AFL	RAPPAHANNOCK	RAPIDAN-UPPER RAPPAHANNOCK	2080103	HAZEL RIVER AT RT. 729
HKS000.96	38 42 31	78 12 22	AFL	RAPPAHANNOCK	RAPIDAN-UPPER RAPPAHANNOCK	2080103	HAWKSBILL CR. AT RT.648 BRIDGE
HLD002.67	37 55 40	75 36 31	BFL	EASTERN SHORE	POCOMOKE	2060009	HOLDENS CREEK AT RT. 701 BRIDG
HOK000.74	37 55 02	76 51 34	BFL	RAPPAHANNOCK	LOWER RAPPAHANNOCK	2080104	HOSKINS CR. AT RT. 360 BRIDGE
HOL003.15	37 24 58	78 38 10	AFL	JAMES	APPOMATTOX	2080207	HOLIDAY CR. AT RT. 614 BRIDGE
HOR003.87	38 57 40	77 25 52	AFL	POTOMAC	MIDDLE POTOMAC CATOCTIN	2070008	HORSEPEN RUN OFF RT. 28, DULLES
HRD011.57	38 48 45	78 27 18	AFL	POTOMAC	NORTH FORK SHENANDOAH	2070006	HARDWARE R. AT RT. 637 BRIDGE
HUT000.01	38 47 23	77 03 06	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	HUNTING CR. AT THE GEORGE WASHI
JKS000.38	37 47 18	79 46 52	AFL	JAMES	UPPER JAMES	2080201	JACKSON R.AT RT.727 BRIDG
JKS023.61	37 47 19	80 00 03	AFL	JAMES	UPPER JAMES	2080201	JACKSON R. AT COVINGTON PARK
JKS036.11	37 52 35	79 58 39	AFL	JAMES	UPPER JAMES	2080201	JACKSON R. AT SMITH BRIDGE
JKS066.41	38 02 32	79 52 54	AFL	JAMES	UPPER JAMES	2080201	JACKSON R. OFF RT.603
JMS005.72	36 57 18	76 23 30	LE-5	JAMES	LOWER JAMES	2080206	JAMES RIVER
JMS013.10	36 59 24	76 27 36	LE-5	JAMES	LOWER JAMES	2080206	JAMES RIVER
JMS021.04	37 03 28	76 35 00	LE-5	JAMES	LOWER JAMES	2080206	JAMES RIVER
JMS032.59	37 12 24	76 39 06	LE-5	JAMES	LOWER JAMES	2080206	JAMES RIVER
JMS074.44	37 19 01	77 13 25	TF-5	JAMES	LOWER JAMES	2080206	JAMES R. AT RT. 156
JMS075.04	37 18 46	77 13 59	TF-5	JAMES	LOWER JAMES	2080206	BOUY 107, BAILEY BAY HOPEWELL
JMS099.30	37 24 11	77 23 31	TF-5	JAMES	LOWER JAMES	2080206	BOUY 157 KINGSLAND REACH, CHEST
JMS110.30	37 31 50	77 26 02	BFL	JAMES	MIDDLE JAMES-WILLIS	2080205	JAMES R. AT MAYO BRIDGE
JMS117.35	37 33 41	77 32 38	AFL	JAMES	MIDDLE JAMES-WILLIS	2080205	JAMES R.AT HUGUENOT BRIDGE
JMS157.28	37 40 13	78 05 13	AFL	JAMES	MIDDLE JAMES-WILLIS	2080205	JAMES R. AT RT. 45
JMS189.51	37 47 47	78 29 29	AFL	JAMES	MIDDLE JAMES-BUFFALO	2080203	JAMES R. AT RT. 20 BRIDGE
JMS229.14	37 32 11	78 49 39	AFL	JAMES	MIDDLE JAMES-BUFFALO	2080203	RT. 60 BRIDGE
JMS258.54	37 24 20	79 08 50	AFL	JAMES	MIDDLE JAMES-BUFFALO	2080203	RT. 29 ALTERNATE
JMS272.75	37 30 48	79 19 54	AFL	JAMES	MIDDLE JAMES-BUFFALO	2080203	JAMES R. BELOW BIG ISLAND
JMS282.28	37 35 28	79 22 51	AFL	JAMES	MIDDLE JAMES-BUFFALO	2080203	JAMES R. ABOVE BIG ISLAND
JOB000.39	37 30 23	80 06 18	AFL	JAMES	UPPER JAMES	2080201	JOHNS CR. AT RT.615 BRIDGE
KSL000.18	37 24 28	77 23 54	BFL	JAMES	LOWER JAMES	2080206	KINGSLAND CR. AT
LAF000.00	36 53 42	76 19 53	LE-5	JAMES	LOWER JAMES	2080206	LAFAYETTE RIVER
LDR000.70	38 23 19	78 13 08	AFL	RAPPAHANNOCK	RAPIDAN-UPPER RAPPAHANNOCK	2080103	LITTLE DARK RUN AT RT.680
LEW002.80	38 09 49	79 00 18	AFL	POTOMAC	SOUTH FORK SHENANDOAH	2070005	LEWIS CR. AT RT.275 BRIDGE
LIF000.19	38 42 46	77 04 29	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	LITTLE HUNTING CR. AT THE G. WA
LKN001.19	36 52 48	76 00 44	BFL	JAMES	LYNNHAVEN-POQUOSON	2080108	LINKHORN BAY AT UPPER BAY NEAR
LKN002.77	36 51 31	76 00 34	BFL	JAMES	LYNNHAVEN-POQUOSON	2080108	LINKHORN BAY AT BUOY 16
LNC000.68	36 51 57	75 59 54	BFL	JAMES	LYNNHAVEN-POQUOSON	2080108	LITTLE NECK CREEK AT MIDCREEK
LNY000.26	38 37 05	78 47 55	AFL	POTOMAC	NORTH FORK SHENANDOAH	2070006	LINVILLE CR. AT RT.259 BRIDGE
LOB001.79	36 50 05	76 03 40	BFL	JAMES	LYNNHAVEN-POQUOSON	2080108	LONDON BRIDGE CREEK AT POTTERS
LYN000.03	36 54 27	76 05 35	CB-8	CHESBAY	LOWER CHESAPEAKE BAY	2080101	LYNNHAVEN RIVER AT RT. 60 BRID
MCM005.12	38 06 09	78 35 36	AFL	JAMES	RIVANNA	2080204	MECHUM R. AT RT.614 BRIDG
MDL001.83	38 14 43	78 51 44	AFL	POTOMAC	SOUTH FORK SHENANDOAH	2070005	MIDDLE R. AT RT.769 BRIDGE
MDL036.08	38 14 38	79 02 08	AFL	POTOMAC	SOUTH FORK SHENANDOAH	2070005	MIDDLE R. AT RT.742 BRIDGE
MES001.34	37 54 11	75 41 03	EE-3	CHESBAY	UPPER CHESAPEAKE BAY	2060001	MESSONGO CREEK END OF RT. 788
MPN004.39	37 34 18	76 47 36	RET-4	YORK	YORK	2080107	MATTAPONI R. AT MUDDY PT.
MPN029.08	37 43 22	77 01 26	TF-4	YORK	PAMUNKEY	2080106	MATTAPONI R., WALKER RR BRIDGE
MPN073.75	37 54 29	77 17 59	BFL	YORK	MATTAPONI	2080105	RT. 647
MPN094.79	38 03 37	77 23 05	BFL	YORK	MATTAPONI	2080105	MATTAPONI RIVER AT RT. 60
MRY000.46	37 37 54	79 26 38	AFL	JAMES	UPPER JAMES	2080201	MAURY R. AT RT.130 BRIDGE
MRY014.78	37 45 08	79 23 32	AFL	JAMES	MAURY	2080202	MAURY R. AT RT.60 BRIDGE
MRY036.77	37 54 17	79 25 07	AFL	JAMES	MAURY	2080202	MAURY R. AT RT.39 BRIDGE
MTN019.75	38 27 42	77 58 03	AFL	RAPPAHANNOCK	RAPIDAN-UPPER RAPPAHANNOCK	2080103	MOUNTAIN RUN AT RT. 29 BY-PASS
NAN000.20	36 54 20	76 27 25	LE-5	JAMES	LOWER JAMES	2080206	BUOY 3
NAN002.77	36 53 08	76 29 35	LE-5	JAMES	LOWER JAMES	2080206	NANSEMOND RIVER
NAN002.88	36 53 07	76 29 47	LE-5	JAMES	LOWER JAMES	2080206	200 YDS UPSTREAM OF RT 17 BRIDG
NAN005.82	36 51 24	76 31 34	LE-5	JAMES	LOWER JAMES	2080206	BOUY 14
NAN007.89	36 50 51	76 32 54	BFL	JAMES	LYNNHAVEN-POQUOSON	2080108	BOUY22
NAN010.69	36 48 20	76 33 32	LE-5	JAMES	LOWER JAMES	2080206	BOUY 38
NAN012.53	36 46 53	76 33 35	BFL	JAMES	LYNNHAVEN-POQUOSON	2080108	400 YRDS UPSTREAM OF W. BRANCH
NAN014.96	36 46 06	76 33 51	BFL	JAMES	LYNNHAVEN-POQUOSON	2080108	BEND DOWNSTREAM OF BRIDGE
NAN016.07	36 45 35	76 34 06	BFL	JAMES	LYNNHAVEN-POQUOSON	2080108	CAUSEWAY BRIDGE
NAN019.14	36 44 21	76 34 59	BFL	JAMES	LYNNHAVEN-POQUOSON	2080108	RT 460 BRIDGE

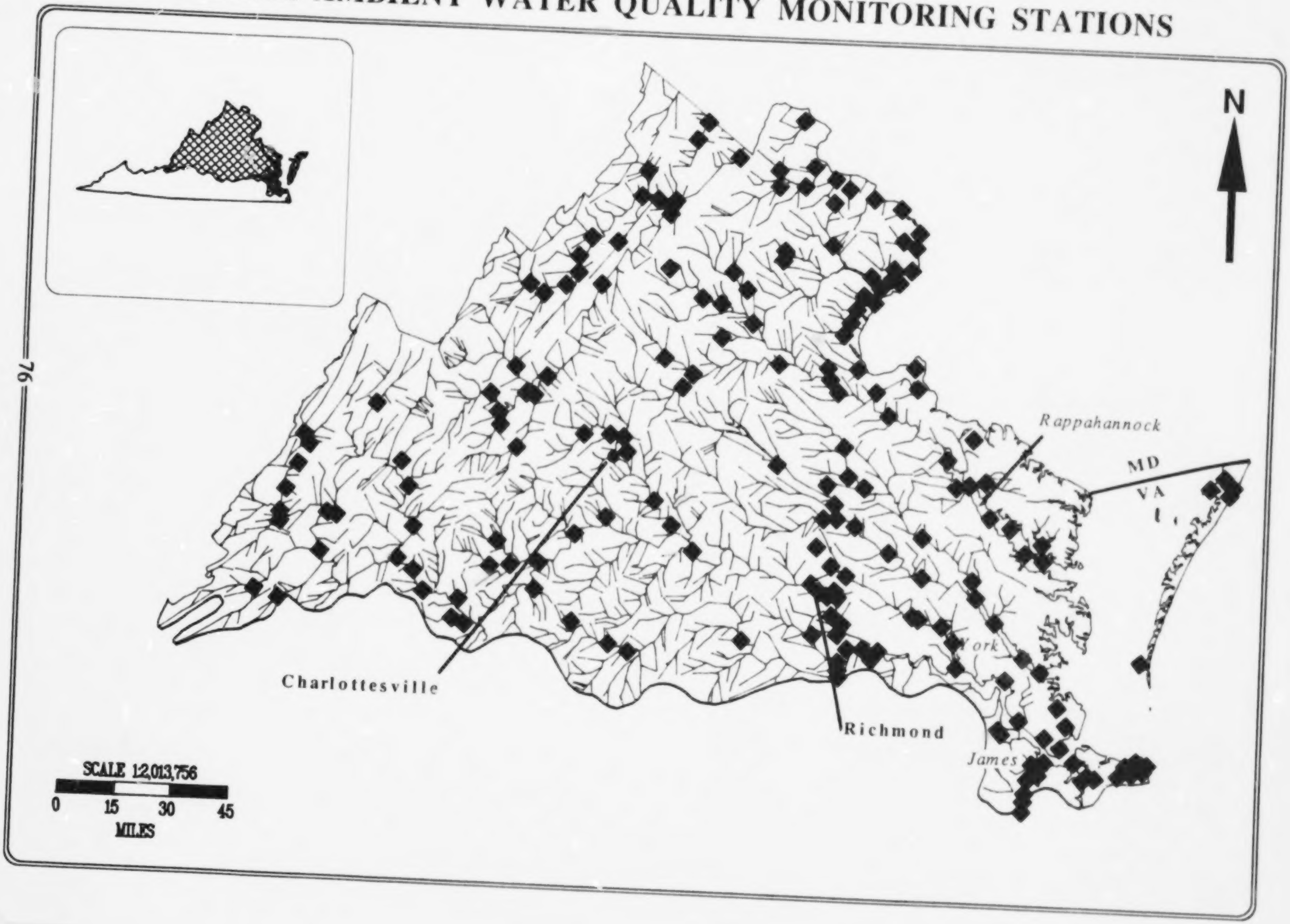
VIRGINIA AMBIENT WATER QUALITY MONITORING STATIONS (Cont'd)

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
NAR005.42	37 51 00	77 25 41	BFL	YORK	PAMUNKEY	2080106	N. ANNA RIVER RT. 30
NAR011.20	37 55 01	77 27 58	BFL	YORK	PAMUNKEY	2080106	N. ANNA RIVER RT. 1
NAR032.39	38 00 23	77 41 30	AFL	YORK	PAMUNKEY	2080106	N. ANNA RIVER AT RT. 658
NEA000.57	38 36 00	77 15 25	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	NEABSCO BAY MIDWAY INTO THE BAY
NEA002.89	38 36 39	77 17 26	BFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	NEABSCO CR. AT RT. 1
NEW001.92	37 02 07	76 21 55	BFL	JAMES	LYNNHAVEN-POQUOSON	2080108	NEW MARKET CREEK
NFS000.69	38 57 01	78 11 58	AFL	POTOMAC	SHENANDOAH	2070007	N. FORK SHENANDOAH R. AT RT. 34
NFS010.34	38 58 36	78 20 11	AFL	POTOMAC	NORTH FORK SHENANDOAH	2070006	N. FORK SHENANDOAH R. AT RT. 55
NFS070.64	38 44 46	78 38 20	AFL	POTOMAC	NORTH FORK SHENANDOAH	2070006	RT 698 BRIDGE
NFS081.42	38 39 08	78 41 53	AFL	POTOMAC	NORTH FORK SHENANDOAH	2070006	N. FORK SHENANDOAH R. AT RT. 72
NOG005.69	39 04 38	77 41 52	AFL	POTOMAC	MIDDLE POTOMAC CATOCTIN	2070008	N. FORK GOOSE CR. AT RT. 722
NSF093.53	38 38 14	78 51 09	AFL	POTOMAC	NORTH FORK SHENANDOAH	2070006	N. FORK SHENANDOAH R. AT RT. 25
NTH014.08	38 20 41	78 55 00	AFL	POTOMAC	SOUTH FORK SHENANDOAH	2070005	N. R. OFF RT. 693
OCC002.47	38 38 25	77 13 20	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	BELMONT BAY AT BUOY #6
OCC006.71	38 41 10	77 15 47	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	OCCOQUAN R. AT RT. 123
OPE025.10	39 14 43	78 02 27	AFL	POTOMAC	CONOCOCHEAGUE-OPEQUON	2070004	OPEQUON CR. AT RT. 672 BRIDGE
OTC002.49	37 15 52	77 24 43	AFL	JAMES	APPOMATTOX	2080207	OLD TOWN CR. AT RT. 1
PCT002.29	37 57 20	77 22 05	BFL	YORK	MATTAPONI	2080105	RT. 601
PCT002.46	37 22 51	77 25 21	BFL	JAMES	LOWER JAMES	2080206	PROCTORS CR. AT RT. 1
PGN010.07	37 01 28	76 40 19	BFL	JAMES	LOWER JAMES	2080206	PAGAN RIVER
PIM000.15	38 56 10	77 07 10	AFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	PIMMIT RUN AT RT. 120
PMK006.36	37 34 18	76 47 36	RET-4	YORK	YORK	2080107	PAMUNKEY R. AT S. END LEE MARSH
PMK034.17	37 34 47	77 01 20	TF-4	YORK	PAMUNKEY	2080106	WHITEHOUSE NEW KENT COUNTY
PMK056.87	37 41 09	77 11 00	BFL	YORK	PAMUNKEY	2080106	PAMUNKEY RIVER AT RT. 360
PMK082.34	37 46 04	77 19 56	BFL	YORK	PAMUNKEY	2080106	PAMUNKEY RIVER AT RT. 614
PNG008.42	37 00 24	76 39 48	BFL	JAMES	LOWER JAMES	2080206	MOUTH OF CHANNEL RUN
PNY003.06	37 42 05	78 59 49	AFL	JAMES	MIDDLE JAMES-BUFFALO	2080203	PINEY R. AT RT. 674 BRIDGE
POH000.21	38 39 54	77 08 17	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	POHICK CR. BOUY #3 MIDWAY
POH002.32	38 40 49	77 10 09	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	POHICK/GUNSTON AT RED BRICK HOU
POM002.41	38 20 51	77 19 39	RET-2	POTOMAC	LOWER POTOMAC	2070011	POTOMAC CR. OFF OLD LANDING POI
POT000.12	37 45 06	79 59 49	AFL	JAMES	UPPER JAMES	2080201	POTTS CR. NEAR COVINGTON PARK
PSG001.36	38 57 32	78 16 00	AFL	POTOMAC	NORTH FORK SHENANDOAH	2070006	PASSAGE CR. AT RT. 55 BRIDGE
PUT000.97	37 25 18	76 19 54	BFL	YORK	GREAT WICOMICO-PIANKATANK	2080102	PUT-IN CR. AT J WARREN COOK'S P
PWT000.57	37 32 03	77 30 31	AFL	JAMES	MIDDLE JAMES-WILLIS	2080205	POWHITE CR. AT RICHMOND
QUA004.46	38 33 56	77 19 45	BFL	POTOMAC	LOWER POTOMAC	2070011	QUANTICO CR. AT RT. 1
RAP006.53	38 21 35	77 41 10	AFL	RAPPAHANNOCK	RAPIDAN-UPPER RAPPAHANNOCK	2080103	RAPIDAN R. AT RT. 610
RAP045.08	38 16 49	78 08 25	AFL	RAPPAHANNOCK	RAPIDAN-UPPER RAPPAHANNOCK	2080103	RAPIDAN R. AT RT. 522
RDD000.76	37 31 03	77 28 20	AFL	JAMES	MIDDLE JAMES-WILLIS	2080205	REEDY CR. AT RICHMOND
RFK000.19	37 43 57	78 38 54	AFL	JAMES	MIDDLE JAMES-BUFFALO	2080203	ROCKFISH R. AT RT. 626 BRIDGE
ROB001.90	38 19 21	78 05 44	AFL	RAPPAHANNOCK	RAPIDAN-UPPER RAPPAHANNOCK	2080103	ROBINSON R. AT RT. 614
RPP010.60	37 38 00	76 27 48	LE-3	RAPPAHANNOCK	LOWER RAPPAHANNOCK	2080104	RAPPAHANNOCK R. AT ORCHAR POINT
RPP017.72	37 40 13	76 33 16	LE-3	RAPPAHANNOCK	LOWER RAPPAHANNOCK	2080104	RAPPAHANNOCK R. AT LONG P
RPP025.52	37 45 38	76 37 16	LE-3	RAPPAHANNOCK	LOWER RAPPAHANNOCK	2080104	RAPPAHANNOCK R. AT BUOY I
RPP031.57	37 48 30	76 42 48	RET-3	RAPPAHANNOCK	LOWER RAPPAHANNOCK	2080104	RAPPAHANNOCK R.AT BUOY NI
RPP042.12	37 55 12	76 48 18	RET-3	RAPPAHANNOCK	LOWER RAPPAHANNOCK	2080104	RAPPAHANNOCK R. N. BUOY RIO-VIM
RPP051.01	38 01 07	76 54 30	TF-3	RAPPAHANNOCK	LOWER RAPPAHANNOCK	2080104	RAPPAHANNOCK RIVER
RPP080.19	38 10 29	77 11 19	TF-3	RAPPAHANNOCK	LOWER RAPPAHANNOCK	2080104	RAPPAHANNOCK R. AT RT. 30
RPP091.55	38 14 44	77 14 02	TF-3	RAPPAHANNOCK	LOWER RAPPAHANNOCK	2080104	RAPPAHANNOCK R. AT BUOY 8
RPP104.47	38 15 19	77 24 43	BFL	RAPPAHANNOCK	LOWER RAPPAHANNOCK	2080104	RAPPAHANNOCK R. BELOW MASSAPONA
RPP111.29	38 18 18	77 27 26	BFL	RAPPAHANNOCK	LOWER RAPPAHANNOCK	2080104	RAPPAHANNOCK R. AT RT. 3 BRIDGE
RPP147.10	38 31 10	77 49 20	AFL	RAPPAHANNOCK	RAPIDAN-UPPER RAPPAHANNOCK	2080103	RAPPAHANNOCK R.AT RT.15-2
RRN002.19	38 05 17	78 24 48	AFL	JAMES	RIVANNA	2080204	N. FORK RIVANNA R. AT RT. 649 B
RRS003.08	38 06 04	78 27 43	AFL	JAMES	RIVANNA	2080204	S. FORK RIVANNA R. AT RT. 29 BR
RVN001.60	37 45 51	78 11 07	AFL	JAMES	RIVANNA	2080204	RIVANNA R. AT RT. 6 BRIDGE
RVN015.41	37 51 28	78 15 59	AFL	JAMES	RIVANNA	2080204	RIVANNA R. AT RT.15 BRIDGE
RVN033.08	38 01 58	78 23 59	AFL	JAMES	RIVANNA	2080204	RIVANNA R.AT RT.729 BRIDGE
SAR001.11	37 48 00	77 25 28	BFL	YORK	PAMUNKEY	2080106	S. ANNA RIVER AT RT. 738
SBB000.17	37 54 46	75 35 30	BFL	EASTERN SHORE	POCOMOKE	2060009	SANDY BOTTOM BEACH AT RT. 695
SBE001.53	36 49 48	76 17 30	LE-5	JAMES	LOWER JAMES	2080206	S. BRANCH ELIZABETH RIVER
SCA001.34	38 05 23	76 47 24	BFL	RAPPAHANNOCK	LOWER RAPPAHANNOCK	2080104	SCATES BRANCH OFF RT. 3
SFT004.92	37 16 58	77 24 44	AFL	JAMES	APPOMATTOX	2080207	SWIFT CR. AT RT. 1
SFT019.15	37 22 04	77 31 04	AFL	JAMES	APPOMATTOX	2080207	SWIFT CR. AT RT. 655
SGL001.00	36 44 38	76 33 47	BFL	JAMES	LYNNHAVEN-POQUOSON	2080108	SHINGLE CREEK
SHN022.63	39 07 28	77 53 30	AFL	POTOMAC	SHENANDOAH	2070007	SHENANDOAH R. AT RT.7 BRIDGE
SMT004.60	38 41 38	78 38 36	AFL	POTOMAC	NORTH FORK SHENANDOAH	2070006	RT 260 BRIDGE
SOT001.44	38 45 18	77 40 27	AFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	S. RUN AT RT. 215
SSF000.58	38 56 32	78 11 57	AFL	POTOMAC	NORTH FORK SHENANDOAH	2070006	S. FORK SHENANDOAH R. AT RT. 34

VIRGINIA AMBIENT WATER QUALITY MONITORING STATIONS (Cont'd)

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
SSF003.56	38 54 49	78 12 36	AFL	POTOMAC	SOUTH FORK SHENANDOAH	2070005	S. FORK SHENANDOAH R. AT RT. 61
SSF054.20	38 38 46	78 32 07	AFL	POTOMAC	SOUTH FORK SHENANDOAH	2070005	S. FORK SHENANDOAH R. AT RT. 21
SSF100.10	38 18 46	78 46 13	AFL	POTOMAC	SOUTH FORK SHENANDOAH	2070005	S. FORK SHENANDOAH R. AT RT. 70
STH007.80	38 13 70	78 50 34	AFL	POTOMAC	SOUTH FORK SHENANDOAH	2070005	S. R. AT RT. 778 BRIDGE
STH027.10	38 03 26	78 54 29	AFL	POTOMAC	SOUTH FORK SHENANDOAH	2070005	S. R. AT RT. 664 IN WAYNESBORO
STY001.22	38 49 15	78 34 02	AFL	POTOMAC	NORTH FORK SHENANDOAH	2070006	STONEY CR. AT RT.11 BRIDGE
SUG004.42	39 00 47	77 22 09	AFL	POTOMAC	MIDDLE POTOMAC CATOCTIN	2070008	SUGARLAND RUN AT RT. 7
THA000.76	36 50 36	76 07 29	BFL	JAMES	LYNNHAVEN-POQUOSON	2080108	THALIA CREEK AT RT. 58 BRIDGE
THO006.50	38 36 01	78 03 02	AFL	RAPPAHANNOCK	RAPIDAN-UPPER RAPPAHANNOCK	2080103	THORNTON R. AT RT. 729
TOT005.11	37 55 25	76 43 29	BFL	RAPPAHANNOCK	LOWER RAPPAHANNOCK	2080104	TOTUSKY CR. AT RT.3 BRIDG
TUS000.37	39 05 03	77 31 01	AFL	POTOMAC	MIDDLE POTOMAC CATOCTIN	2070008	TUSCARORA CR. AT RT. 653
TYE000.30	37 38 33	78 48 45	AFL	JAMES	MIDDLE JAMES-BUFFALO	2080203	TYE R. AT RT. 626 BRIDGE
UMC004.43	38 17 17	77 03 36	LE-2	POTOMAC	LOWER POTOMAC	2070011	UPPER MACHODOC AT RT. 218
UPM003.53	37 36 55	77 26 26	BFL	JAMES	LOWER JAMES	2060206	UPHAM BR. AT RT. 1
WES000.62	36 53 18	76 06 25	CB-8	CHESBAY	LOWER CHESAPEAKE BAY	2080101	WEST BRANCH LYNNHAVEN RIVER AT
WES001.68	36 52 24	76 06 27	CB-8	CHESBAY	LOWER CHESAPEAKE BAY	2080101	WEST BRANCH LYNNHAVEN RIVER AT
WES002.58	36 51 43	76 06 56	CB-8	CHESBAY	LOWER CHESAPEAKE BAY	2080101	WEST BRANCH LYNNHAVEN RIVER AT
WLL001.30	38 20 21	77 03 34	BFL	POTOMAC	LOWER POTOMAC	2070011	WILLIAMS CR. AT RT. 206
XAZ000.30	37 54 10	75 34 47	BFL	EASTERN SHORE	POCOMOKE	2060009	TRIB. TO SANDY BOTTOM AT RT.
XBB000.58	37 52 37	75 35 46	BFL	EASTERN SHORE	POCOMOKE	2060009	RT. 693 BRIDGE AT J.M. TAYLOR'
YRK004.56	37 14 06	76 29 06	LE-4	YORK	YORK	2080107	YORK RIVER AT BUOY 2
YRK011.14	37 17 30	76 34 13	LE-4	YORK	YORK	2080107	YORK RIVER AT BUOY N34
YRK022.70	37 25 06	76 41 36	RET-4	YORK	YORK	2080107	YORK RIVER AT BUOY N44
YRK031.39	37 30 24	76 47 18	RET-4	YORK	YORK	2080107	YORK RIVER AT BUOY 057

VIRGINIA AMBIENT WATER QUALITY MONITORING STATIONS



VIRGINIA NORTHERN REGIONAL AMBIENT WATER QUALITY MONITORING NETWORK

PROGRAM DESCRIPTION: The Virginia Northern Regional Ambient Water Quality Monitoring Network consists of approximately 57 stations located in the northern region of Virginia. Sampling is conducted on a monthly basis at these stations with the exception of four Potomac embayment stations where sampling is conducted twice a month from April through September. The network is evaluated on an annual basis and the stations are changed or retired and new stations added.

PROGRAM OBJECTIVES: To determine water quality within the region, and to identify short-term and long-term water quality trends. To monitor point and non-point source inputs.

DATE INITIATED: 1973

COORDINATING AGENCY:

Virginia Water Control Board
Northern Regional Office
5515 Cherokee Avenue, Suite 404
Alexandria, Virginia 22312

FUNDING AGENCY: Virginia Water Control Board

PARTICIPATING AGENCY: Virginia Water Control Board (VWCB)

INVESTIGATORS:

Technical Services Supervisor	Cynthia A. Sale	VWCB
Technical Project Coordinator	Jeff Talbott	VWCB

PARAMETERS:

Weather
Flow Severity
Water Temperature
Dissolved Oxygen
Specific Conductivity
pH
Secchi Depth**
Alkalinity
Hardness, EDTA
Total Kjeldahl Nitrogen
Nitrate
Nitrite
Ammonium
Total Phosphorus
Dissolved Inorganic Phosphorus
Dissolved Reactive Phosphorus*
Total Organic Carbon
Dissolved Reactive Silica*
Total Suspended Solids
Volatile Suspended Solids
Fixed Suspended Solids
Turbidity
Chlorophyll *a***
Total Coliform*
Fecal Coliform
Chloride
Residual Chlorine
5-day Biological Oxygen Demand
Chemical Oxygen Demand

* Coordinated Potomac Runs only
** Coordinated Potomac Runs/embayment stations

STATIONS: There are currently 57 stations in this network located in the Potomac River (30), the Rappahannock River (17), and the York River (10).

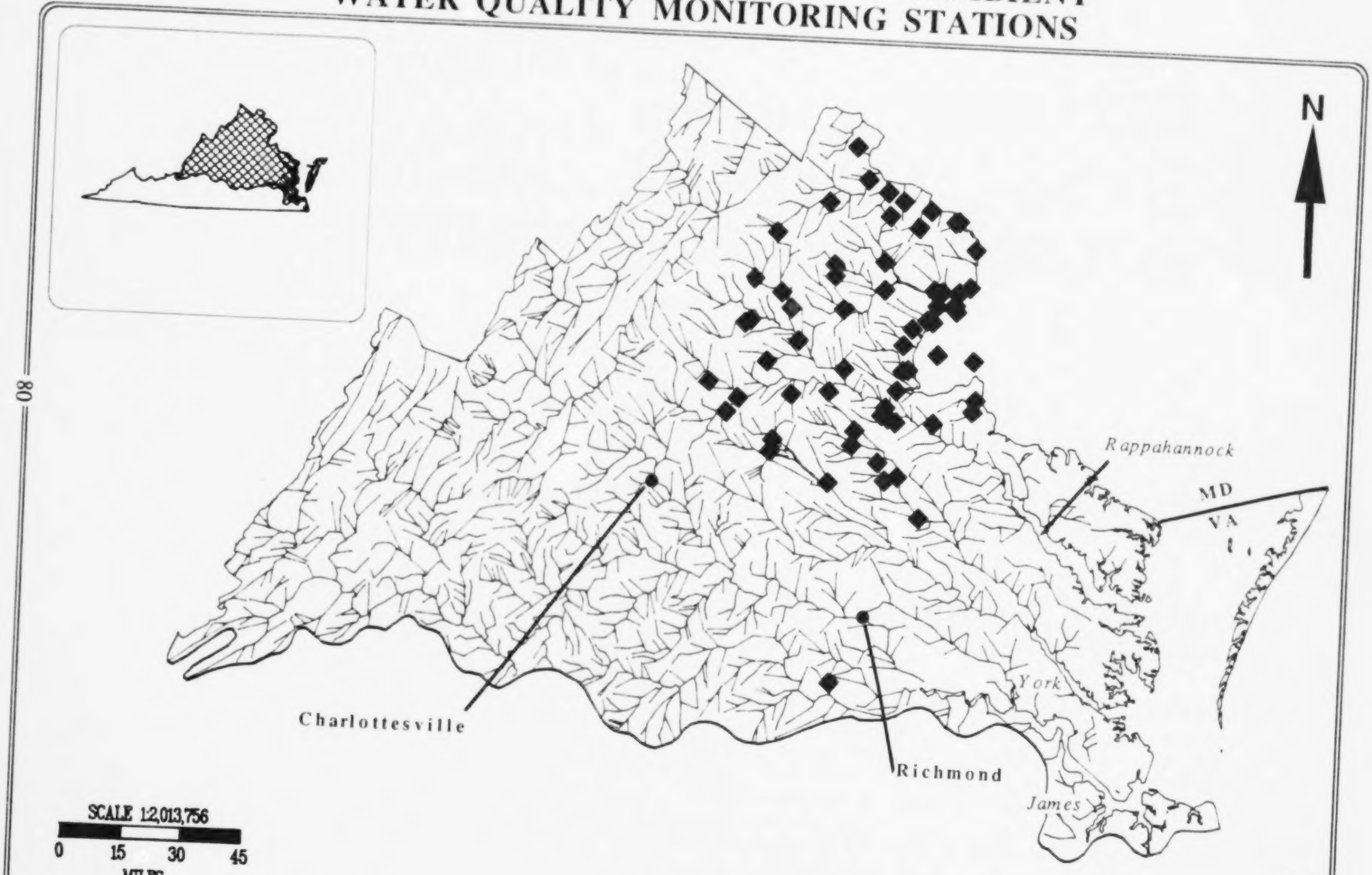
SAMPLE COLLECTION: Sampling is conducted on a monthly basis at most stations, with the exception of four Potomac embayment and two Chesapeake Bay stations where sampling is conducted twice a month from April through September. Weather, flow severity, temperature, DO, pH, residual chlorine and secchi depth measurements are profiled in the field. All samples are taken from the surface except chlorophyll samples which are taken 1 foot below the water surface. Chesapeake Bay stations are collected 1 meter below the surface and 1 meter above the bottom.

PROGRAM INTEGRATION: Nineteen of the Northern Regional Water Quality Monitoring stations (9 free flowing and 10 embayment stations) are sampled in a coordinated effort with Maryland and Washington, D.C. and data is submitted to MWCOG as part of the Coordinated Potomac Regional Monitoring Program. A quarterly split sample program between VWCB, MDE, and DCRA has been established. Two of the Northern Regional Water Quality Monitoring stations are sampled in a coordinated effort with other VWCB regions. Data is collected as part of the Chesapeake Bay Program.

VIRGINIA NORTHERN REGIONAL AMBIENT WATER QUALITY MONITORING STATIONS

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
AUA003.71	38 25 23	77 21 19	RET-2	POTOMAC	LOWER POTOMAC	2070011	AQUAIA CREEK - RAILROAD TRACKS
BRB002.15	39 02 80	77 26 00	AFL	POTOMAC	MIDDLE POTOMAC CATOCTIN	2070008	BROAD RUN - RT 7
BRU020.12	38 46 50	77 40 23	AFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	BROAD RUN RT 29/211
BUL010.28	38 48 11	77 26 59	AFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	BULL RUN - RT 28
CAE000.25	38 41 56	77 54 26	AFL	RAPPAHANNOCK	RAPIDAN-UPPER RAPPAHANNOCK	2080103	CARTER RUN - RT 688
CAX004.57	39 11 55	77 34 36	AFL	POTOMAC	MIDDLE POTOMAC CATOCTIN	2070008	CATOCTIN CREEK - RT 663
CER016.46	38 38 12	77 37 34	AFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	CEDAR RUN - RT 806
CHO003.65	38 31 12	77 21 42	BFL	POTOMAC	LOWER POTOMAC	2070011	RT 1 - CHOPAWAMSIC CREEK
CLB000.50	38 18 10	77 26 53	BFL	RAPPAHANNOCK	LOWER RAPPAHANNOCK	2080104	CLAIRBORNE RUN - ACCESS RD OFF
DIF000.86	38 58 33	77 14 46	AFL	POTOMAC	MIDDLE POTOMAC CATOCTIN	2070008	DIFFICULT RUN - RT 193
DOU000.60	38 41 52	77 07 16	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	DOGUE CREEK - ACROSS MT. VERNON
DPR001.70	38 25 49	77 37 47	AFL	RAPPAHANNOCK	RAPIDAN-UPPER RAPPAHANNOCK	2080103	DEEP RUN - RT 17
FOU000.19	38 50 28	77 02 54	BFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	GW PARKWAY - FOUR MILE RUN
GOO022.44	39 00 48	77 42 01	AFL	POTOMAC	MIDDLE POTOMAC CATOCTIN	2070008	GOOSE CREEK - RT 734
GOO044.36	38 54 51	77 55 19	AFL	POTOMAC	MIDDLE POTOMAC CATOCTIN	2070008	GOOSE CREEK - RT 17
GOO002.38	39 05 08	77 30 41	AFL	POTOMAC	MIDDLE POTOMAC CATOCTIN	2070008	GOOSE CREEK - RT 7
GRT001.70	38 38 34	77 51 35	AFL	RAPPAHANNOCK	RAPIDAN-UPPER RAPPAHANNOCK	2080103	GREAT RUN - RT 687
HAZ000.57	38 17 31	77 27 27	BFL	RAPPAHANNOCK	LOWER RAPPAHANNOCK	2080104	HAZEL RUN - RT 17/2
HAZ018.29	38 35 54	78 03 43	AFL	RAPPAHANNOCK	RAPIDAN-UPPER RAPPAHANNOCK	2080103	HAZEL R. - RT 729
HOR003.87	38 57 40	77 25 52	AFL	POTOMAC	MIDDLE POTOMAC CATOCTIN	2070008	HORSEPEN RUN - DULLES ACCESS RD
HUT000.01	38 47 35	77 04 01	BFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	GW PARKWAY - HUNTING CREEK
LDR000.70	38 23 19	78 13 08	AFL	RAPPAHANNOCK	RAPIDAN-UPPER RAPPAHANNOCK	2080103	LITTLE DARK RUN - RT 680
LIF000.19	38 42 46	77 04 29	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	GW PARKWAY - LITTLE HUNTING CRE
MIR004.05	38 20 36	77 51 34	AFL	RAPPAHANNOCK	RAPIDAN-UPPER RAPPAHANNOCK	2080103	MINE RUN - RT 611
MPN094.79	38 03 37	77 23 35	BFL	YORK	MATTAPONI	2080105	MATTAPONI RIVER - RT 605
MPN073.75	37 54 29	77 17 59	BFL	YORK	MATTAPONI	2080105	MATTAPONI RIVER - RT 647
MTA001.69	38 06 11	77 28 53	BFL	YORK	MATTAPONI	2080105	MATTA RIVER - RT 632
MTN019.75	38 27 42	77 58 03	AFL	RAPPAHANNOCK	RAPIDAN-UPPER RAPPAHANNOCK	2080103	MOUNTAIN RUN - RT 29
NEA000.57	38 36 00	77 15 25	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	NEABSCO BAY - MIDWAY IN BAY
NIR009.61	38 13 03	77 34 12	AFL	YORK	MATTAPONI	2080105	NI RIVER - RT 208
NST003.46	38 02 36	77 41 36	AFL	YORK	PAMUNKEY	2080106	NORTHEAST CREEK - RT 622
OCC002.47	38 39 00	77 13 29	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	OCCOQUAN/BELMONT BAY - BOUY 6
OCC024.74	38 42 19	77 26 50	AFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	OCCOQUAN RIVER - RT 234
PCT002.29	38 25 23	77 21 19	RET-2	POTOMAC	LOWER POTOMAC	2070011	POLECAT CREEK - RT 601
PIM000.15	38 56 10	77 07 10	AFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	PIMMIT RUN - RT 120
PIN000.57	38 56 10	77 07 10	AFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	PINE HILL CREEK - RT 205
PMC009.85	38 09 17	77 57 03	AFL	YORK	PAMUNKEY	2080106	PAMUNKEY CREEK - RT 651
POH000.21	38 39 54	77 08 17	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	POHICK/GUNSTON COVE - MIDWAY IN
POH002.32	38 41 50	77 12 03	BFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	POHICK/GUNSTON COVE - ACROSS BR
POM002.41	38 21 24	77 23 45	BFL	POTOMAC	LOWER POTOMAC	2070011	POTOMAC CREEK - OFF OLD LANDING
POR009.34	38 10 16	77 35 45	AFL	YORK	MATTAPONI	2080105	PO RIVER RT 208
POW003.11	38 55 44	77 17 57	AFL	POTOMAC	MIDDLE POTOMAC CATOCTIN	2070008	RT 1 - POWELLS CREEK
QUA004.46	38 33 56	77 19 45	BFL	POTOMAC	LOWER POTOMAC	2070011	RT 1 - QUANTICO CREEK
RAP006.53	38 21 32	77 41 10	AFL	RAPPAHANNOCK	RAPIDAN-UPPER RAPPAHANNOCK	2080103	RAPIDAN RIVER
RAP045.08	38 16 49	78 08 25	AFL	RAPPAHANNOCK	RAPIDAN-UPPER RAPPAHANNOCK	2080103	RAPIDAN RIVER RT 15
ROB001.90	38 19 21	78 05 44	AFL	RAPPAHANNOCK	RAPIDAN-UPPER RAPPAHANNOCK	2080103	ROBINSON RIVER - RT 614
RPP091.55	38 14 44	77 14 02	TF-3	RAPPAHANNOCK	LOWER RAPPAHANNOCK	2080104	RAPPAHANOCK R. - BOUY #89
RPP104.47	38 15 19	77 24 43	BFL	RAPPAHANNOCK	LOWER RAPPAHANNOCK	2080104	RAPPAHANOCK R. - 100 YDS. BELOW
RPP147.10	38 32 10	77 49 20	AFL	RAPPAHANNOCK	RAPIDAN-UPPER RAPPAHANNOCK	2080103	RAPPAHANNOCK RIVER - RT 29 (BUS
RPP175.51	38 45 23	78 01 42	AFL	RAPPAHANNOCK	RAPIDAN-UPPER RAPPAHANNOCK	2080103	RAPPAHANOCK R. - RT 647
SOT001.44	38 45 18	77 40 27	AFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	SOUTH RUN - RT 215
STH004.37	38 03 09	77 26 23	BFL	YORK	MATTAPONI	2080105	SOUTH RIVER - RT 638
SUG004.42	39 00 47	77 22 09	AFL	POTOMAC	MIDDLE POTOMAC CATOCTIN	2070008	SUGARLAND RUN - RT 7
THO006.50	38 36 01	78 03 52	AFL	RAPPAHANNOCK	RAPIDAN-UPPER RAPPAHANNOCK	2080103	THORTON R. - RT 729
TRY004.98	38 11 13	77 55 39	AFL	YORK	PAMUNKEY	2080106	TERRY'S RUN - RT 629
TUS000.37	39 05 03	77 31 01	AFL	POTOMAC	MIDDLE POTOMAC CATOCTIN	2070008	TUSCARORA CREEK - RT 653
UMC004.43	38 17 17	77 03 36	LE-2	POTOMAC	LOWER POTOMAC	2070011	UPPER MACHODOC CR. - RT 218
WLL001.30	38 19 19	77 03 11	LE-2	POTOMAC	LOWER POTOMAC	2070011	WILLIAMS CREEK - RT 205

VIRGINIA NORTHERN REGIONAL AMBIENT WATER QUALITY MONITORING STATIONS



BATH COUNTY PUMPED STORAGE STATION LITTLE BACK CREEK STREAM SURVEY - WATER QUALITY COMPONENT

PROGRAM DESCRIPTION: The Bath County Pumped Storage Station Little Back Creek Stream Survey - Water Quality Component is conducted as part of a joint stream survey of the Creek located immediately downstream of the Bath County Pumped Storage Station's upper reservoir. Monitoring is conducted annually at six stations. Water quality monitoring is one component of this program which also involves benthic invertebrate and finfish monitoring.

PROGRAM OBJECTIVE: To monitor the effects, if any, of construction and subsequent operation of the Bath County Pumped Storage Station on the fishery of Little Back Creek.

DATE INITIATED: 1979

COORDINATING AGENCY:

Virginia Power
5000 Dominion Boulevard
Glen Allen, Virginia 23060

FUNDING AGENCY:

Virginia Power
Virginia Department of Game and Inland Fisheries
Virginia State Water Control Board
U.S. Forest Service

PARTICIPATING AGENCIES:

Virginia Power (VP)
Virginia Department of Game and Inland Fisheries (VDGIF)
Virginia State Water Control Board (VWCB)
U.S. Forest Service (USFS)

INVESTIGATORS:

Program Manager	Burton M. Marshall	VP

PARAMETERS:

Temperature
Dissolved Oxygen
Conductivity
pH
Turbidity
Total Suspended Solids
Sulfate
Calcium
Copper
Iron
Magnesium
Nickel
Zinc

STATIONS: There are six stations in Little Back Creek within the vicinity of the Bath County Pumped Storage Station.

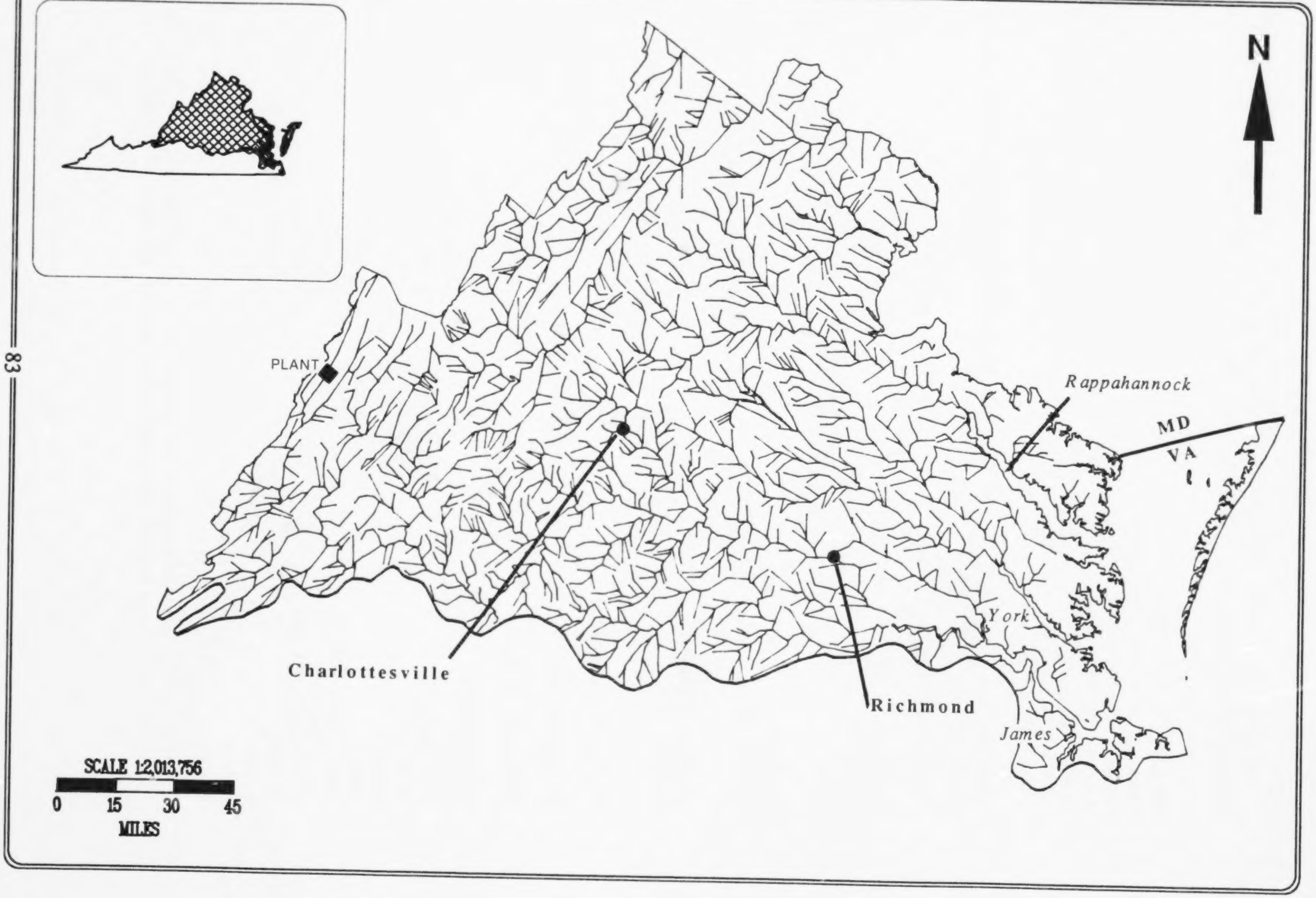
SAMPLE COLLECTION: Samples are collected annually in the summer at six stations in Little Back Creek within the vicinity of the Bath County Pumped Storage Station. All water samples are grab samples taken at the same time as fish and benthic macroinvertebrate collection.

PROGRAM INTEGRATION: The Bath County Pumped Storage Station Little Back Creek Stream Survey - Water Quality Component is part of a joint stream survey which also involves benthic invertebrate and finfish monitoring.

BATH COUNTY PUMPED STORAGE STATION LITTLE BACK CREEK STREAM SURVEY STATIONS - WATER QUALITY COMPONENT

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
PLANT	38 12 30	79 48 00	AFL	JAMES	UPPER JAMES	2080201	BATH COUNTY PUMPED STORAGE STAT

BATH COUNTY PUMPED STORAGE STATION LITTLE BACK CREEK STREAM SURVEY STATIONS - WATER QUALITY COMPONENT



BATH COUNTY PUMPED STORAGE STATION RECREATION POND MONITORING PROGRAM - WATER QUALITY COMPONENT

PROGRAM DESCRIPTION: The Bath County Pumped Storage Station Recreation Pond Monitoring Program - Water Quality Component is conducted in two ponds created as part of mitigation efforts outlined in the Station's 401 Certificate. The recreation ponds draw water from and discharge back into Back Creek downstream of the Pumped Storage Station's lower reservoir. Monitoring is conducted at four stations, two stations in each pond. Water quality monitoring is one component of this program which also involves phytoplankton, zooplankton, benthic invertebrate and finfish monitoring.

PROGRAM OBJECTIVE: To determine fishing regulations and stocking procedures in order to maximize the fishery potential of the recreation ponds.

DATE INITIATED: 1986

COORDINATING AGENCY:

Virginia Power
5000 Dominion Boulevard
Glen Allen, Virginia 23060

FUNDING AGENCIES:

Virginia Power
Virginia Department of Game and Inland Fisheries

PARTICIPATING AGENCIES:

Virginia Power (VP)
Virginia Department of Game and Inland Fisheries (VDGIF)

INVESTIGATORS:

Program Manager	Burton M. Marshall	VP

PARAMETERS:

Total Alkalinity
Acidity
Total Hardness
Ammonia
Nitrate
Nitrite
Total Organic Carbon
Total Phosphorus
Total Dissolved Solids
Turbidity
Sulfate
Arsenic
Barium
Cadmium
Chromium
Copper
Iron
Lead
Manganese
Mercury
Selenium
Silver
Vanadium
Zinc

STATIONS: There are four stations - two each in the two recreation ponds near the Bath County Pumped Storage Station (only plant location is given, but ponds are in same vicinity).

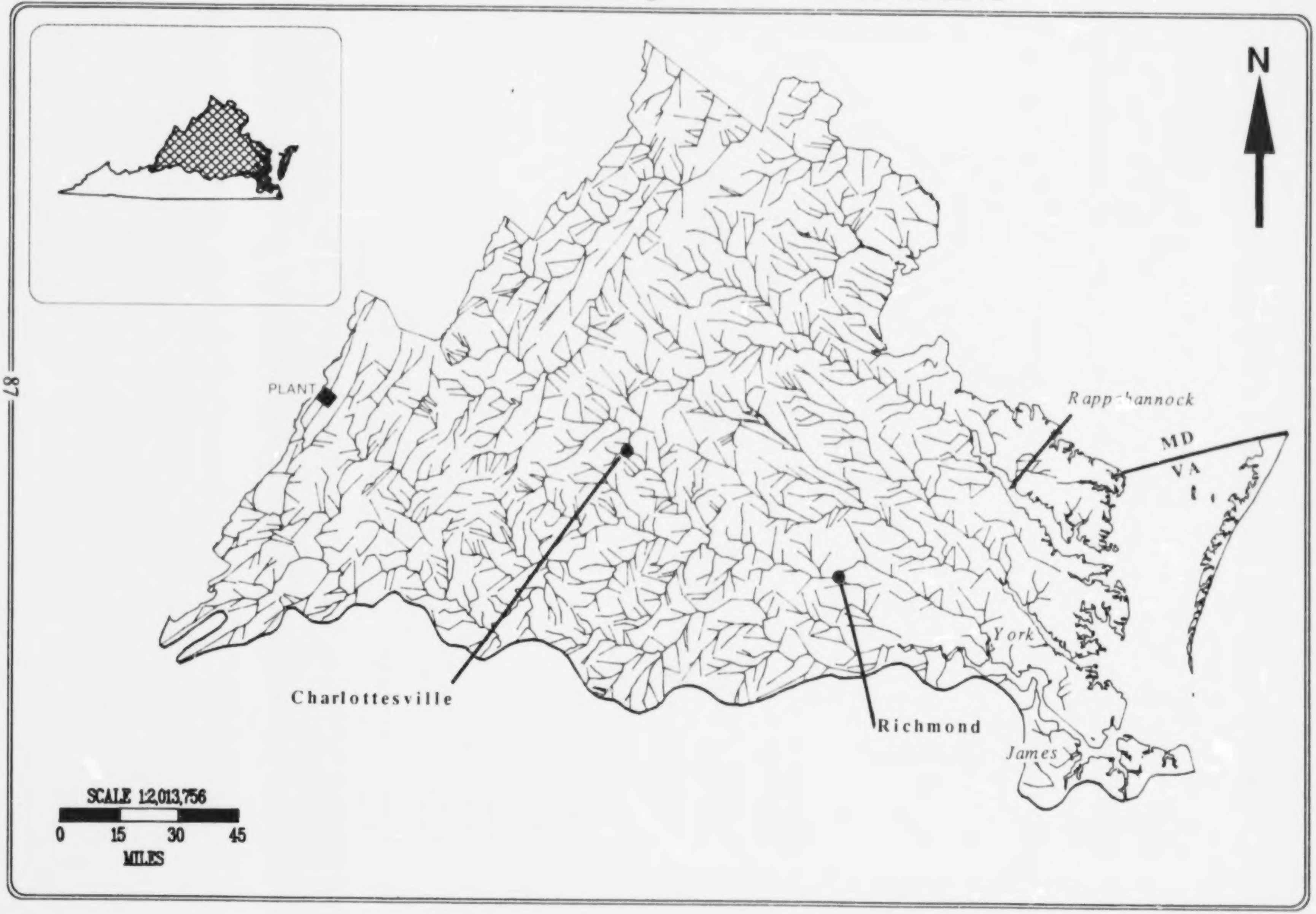
SAMPLE COLLECTION: Monitoring is conducted semi-annually at two stations in each pond (four stations altogether). Surface to bottom vertical profiles at 1 meter intervals are conducted for water temperature, dissolved oxygen, pH and conductivity, and grab samples are collected for laboratory analyses.

PROGRAM INTEGRATION: Water quality monitoring is one component of this program which also involves phytoplankton, zooplankton, benthic invertebrate and finfish monitoring.

BATH COUNTY PUMPED STORAGE STATION RECREATION POND MONITORING STATIONS - WATER QUALITY COMPONENT

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
PLANT	38 12 30	79 48 00	AFL	JAMES	UPPER JAMES	2080201	BATH COUNTY PUMPED STORAGE STAT

BATH COUNTY PUMPED STORAGE STATION RECREATION POND MONITORING STATIONS - WATER QUALITY COMPONENT



WEST VIRGINIA AMBIENT WATER QUALITY NETWORK

PROGRAM DESCRIPTION: The West Virginia Ambient Water Quality Network is a data gathering effort to support the varied activities of the West Virginia Department of Natural Resources. Among other uses, the data collected by this program are used to prioritize and evaluate pollution control efforts throughout the state, and to monitor response to both point and non-point source inputs. Three stations are located in the Chesapeake Bay basin and are sampled on a monthly basis.

PROGRAM OBJECTIVES: To gather baseline water quality data and to document trends over space and time with regard to water quality.

DATE INITIATED: 1960

COORDINATING AGENCY:

West Virginia Department of Natural Resources
Division of Water Resources
1201 Greenbrier Street
Charleston, WV 25311

FUNDING AGENCY: West Virginia Department of Natural Resources

PARTICIPATING AGENCY: West Virginia Department of Natural Resources (WVDNR)

INVESTIGATORS:

Program Coordinator	Mike Zeto	WVDNR
Field Sampling	Doug Wood	WVDNR
Laboratory Analysis	Steve Wright	WVDNR

PARAMETERS:

Flow
Temperature
Dissolved Oxygen
Specific Conductivity
pH
Total Kjeldahl Nitrogen
Nitrate + Nitrite
Total Phosphorus
Total Suspended Solids
Total Alkalinity
Hot Acidity
Chemical Oxygen Demand
Fecal Coliform
Sulfate
Iron
Manganese
Aluminum

STATIONS: The three water quality stations are located in the Potomac River basin in the South Branch Potomac River, in the Shenandoah River and the Cacapon River.

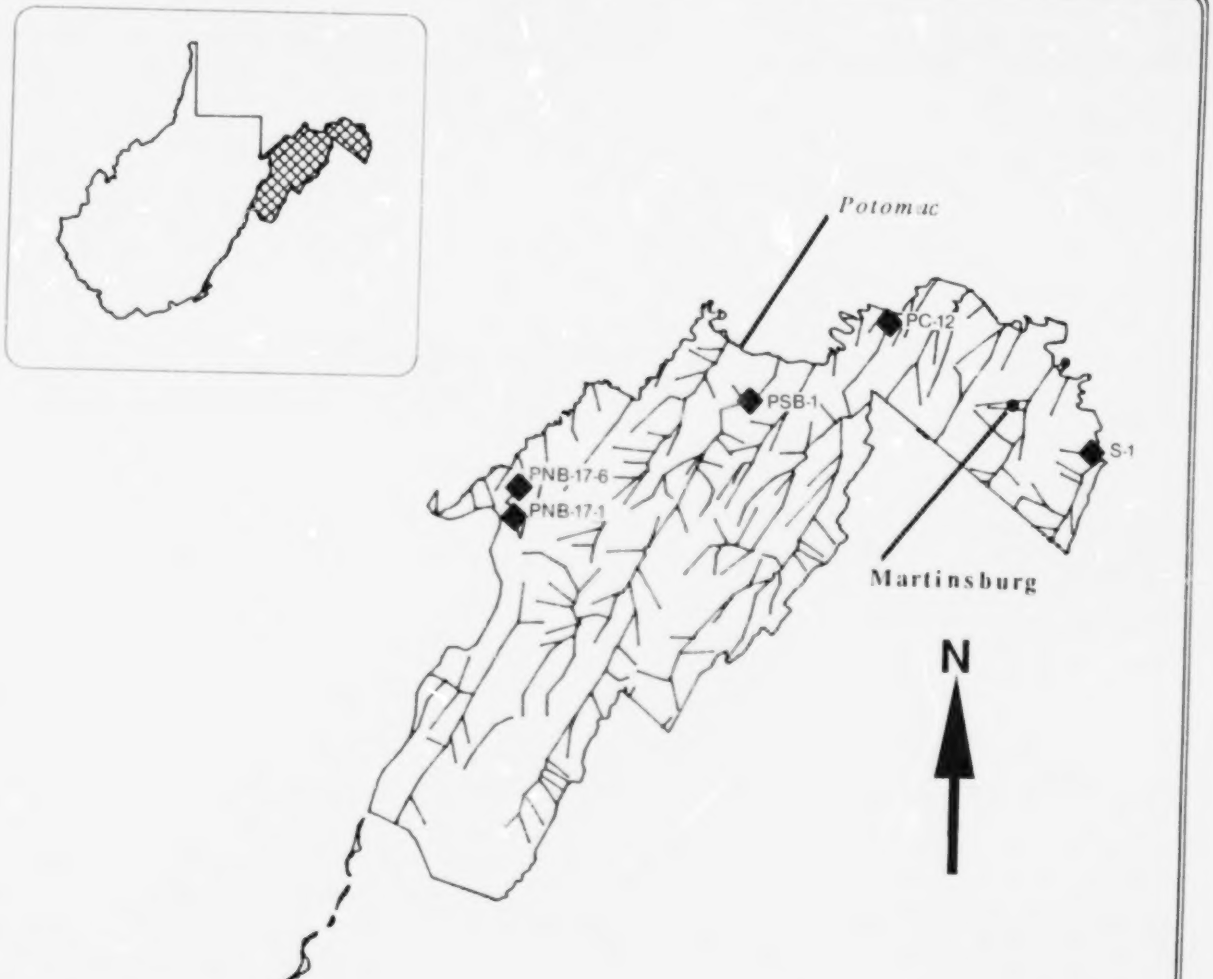
SAMPLE COLLECTION: Surface grab samples are collected on a monthly basis. These are generally taken in the middle of the river unless there is sufficient reason to believe that the river is mixed well enough closer to the shore. All samples are fixed in the field according to EPA guidelines.

PROGRAM INTEGRATION: N/A

WEST VIRGINIA AMBIENT WATER QUALITY MONITORING STATIONS

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
PC-12	39 34 55	78 18 33	AFL	POTOMAC	CACAPON-TOWN	2070003	CACAPON RIVER AT RT 7 BRIDGE
PNB-17-12	39 12 59	79 16 54	AFL	POTOMAC	NORTH BRANCH POTOMAC	2070002	STONY RIVER BELOW MT. STORM DAM
PNB-17-6	39 16 10	79 15 45	AFL	POTOMAC	NORTH BRANCH POTOMAC	2070002	STONY RIVER NEAR MT. STORM US R
PSB-1	39 26 49	78 39 16	AFL	POTOMAC	SOUTH BRANCH POTOMAC	2070001	SOUTH BRANCH POTOMAC RIVER AT R
S-1	39 19 22	77 44 36	AFL	POTOMAC	CONOCOCHEAGUE-OPEQUON	2070004	SHENANDOAH R. AT US 340 BRIDGE

WEST VIRGINIA AMBIENT WATER QUALITY MONITORING STATIONS



NATIONAL STREAM QUALITY ACCOUNTING NETWORK IN PENNSYLVANIA

PROGRAM DESCRIPTION: The National Stream Quality Accounting Network (NASQAN) in Pennsylvania consists of four stations on streams draining into the Chesapeake Bay basin. All of these are in the Susquehanna River basin. Daily records are kept of streamflow and water quality sampling is performed on a bi-monthly or quarterly basis. The National Stream Quality Accounting Network was established by the U.S. Geological Survey in 1973 to provide a uniform basis for continually assessing the quality of streams in the U.S. Similar parameters are measured and similar sampling techniques, frequency of sampling, and analytical methods are utilized at NASQAN stations throughout the nation.

PROGRAM OBJECTIVES: To provide a long-term record of water quality data to be used for planning and management purposes.

DATE INITIATED: 1944 - 1987 (depending on station)

COORDINATING AGENCY:
U.S. Geological Survey
Pennsylvania District
Water Resources Division
P.O. Box 1107
Harrisburg, Pennsylvania 17108

FUNDING AGENCY: U.S. Geological Survey

PARTICIPATING AGENCY: U.S. Geological Survey-Harrisburg (USGS-Harrisburg)

INVESTIGATORS:

Subdistrict Chief	David Wangsness	USGS-Harrisburg
Principal Investigator	Robert Hainly	USGS-Harrisburg

PARAMETERS:

Barometric Pressure
Streamflow

Water Column:
Temperature
Dissolved Oxygen
Specific Conductivity
pH
Alkalinity
Hardness
Dissolved Kjeldahl Nitrogen
Nitrate + Nitrite
Ammonium
Total Phosphorus
Total Dissolved Phosphorus
Dissolved Inorganic Phosphorus
Dissolved Silica
Total Dissolved Solids
Suspended Sediments
Turbidity
Fecal Coliform
Fecal Streptococci
Carbon Dioxide
Dissolved Aluminum
Dissolved Arsenic
Dissolved Barium
Dissolved Beryllium
Dissolved Cadmium

Dissolved Calcium
Dissolved Chloride
Dissolved Chromium
Dissolved Cobalt
Dissolved Copper
Dissolved Flouride
Dissolved Iron
Dissolved Lead
Dissolved Lithium
Dissolved Magnesium
Dissolved Manganese
Dissolved Mercury
Dissolved Molybdenum
Dissolved Nickel
Dissolved Potassium
Dissolved Selenium
Dissolved Silver
Dissolved Sodium
Dissolved Strontium
Dissolved Sulfate
Dissolved Vanadium
Dissolved Zinc

STATIONS: The four NASQAN stations are located within the Susquehanna River basin in Pennsylvania. Two of these are located on the Susquehanna River at Danville and Harrisburg, one is located on the West Branch Susquehanna at Lewisburg, and the fourth is located on the Raystown Branch Juniata River at Saxton.

Note: NASQAN sampling efforts on the Juniata River were transferred to the Saxton location from a site near Newport in 1987.

SAMPLE COLLECTION: Sampling is conducted on a quarterly basis at the Danville and Lewisburg stations, and on a bi-monthly basis at the Saxton and Harrisburg stations. Depth-integrated sampling is conducted along the stream cross-section at equal width increments in order to accurately sample the stream's depth and cross-sectional variability. At each section the sampler is lowered through the water column at equal transit rates. The samples are then composited in a churn splitter.

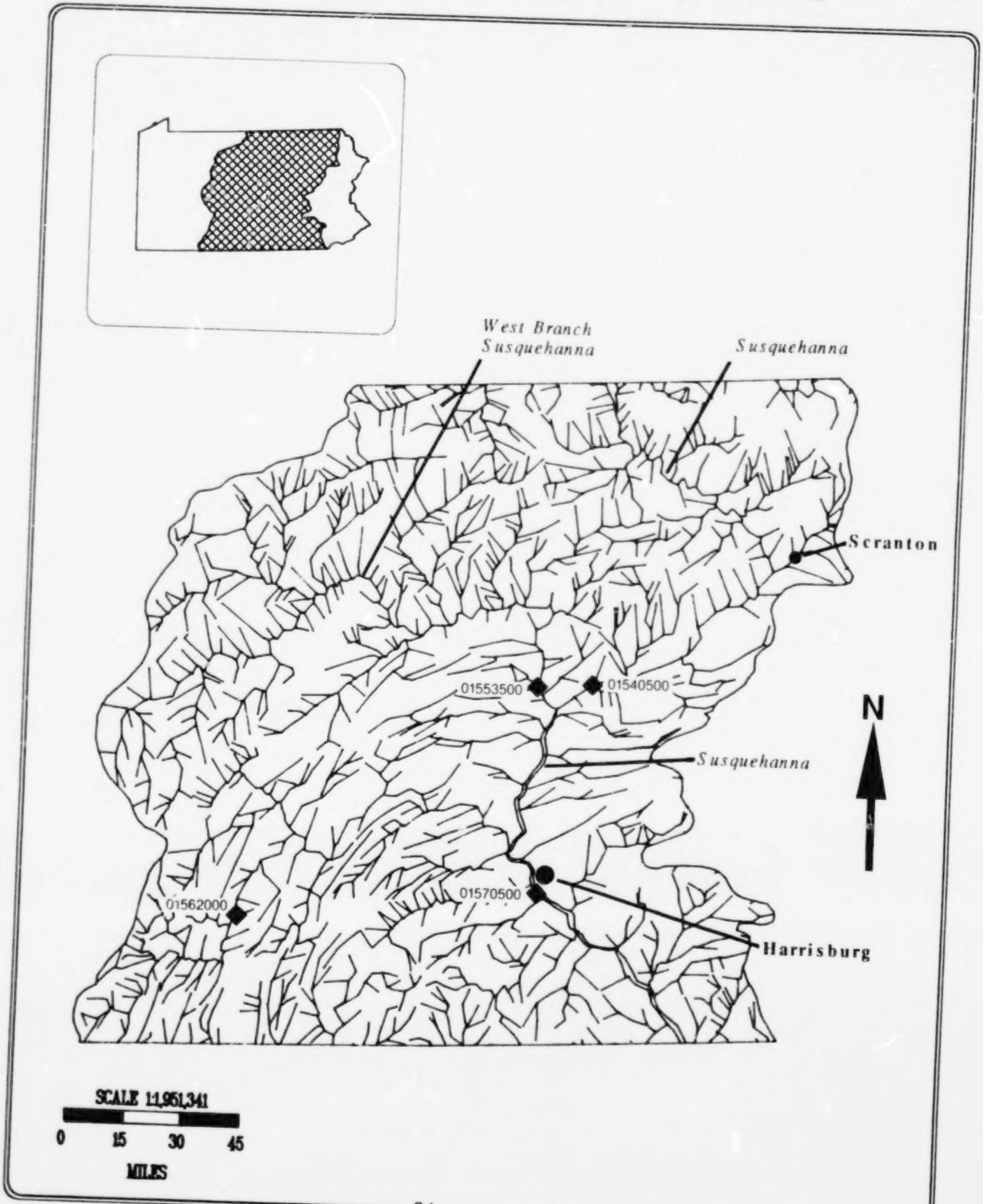
All samples are sent to the USGS National Water-Quality Laboratory for analysis. Nutrient samples are treated with a mercuric chloride/sodium chloride solution, and chilled to less than 4 degrees C. Aluminum and other metals are treated with nitric acid to reach a pH of less than 2.0. Suspended Sediment analyses are performed at the USGS sediment laboratory in Harrisburg, Pennsylvania.

PROGRAM INTEGRATION: The NASQAN program is a subset of the USGS Collection of Basic Records Program.

PENNSYLVANIA NASQAN STATIONS

STATION NAME (S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
01540500	40 57 29	76 37 10	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-LACKAWANNA	2050107	SUSQ R. AT RT 54 BRIDGE IN DANV
01553500	40 58 05	76 52 25	AFL	SUSQUEHANNA	LOWER WEST BRANCH SUSQUEHANNA	2050206	W.BR.SUSQ R. AT MARKET ST BRIDG
01562000	40 12 57	78 15 56	AFL	SUSQUEHANNA	RAYSTOWN	2050303	RAYSTOWN BR. JUNIATA R. AT RT 9
01570500	40 15 17	76 53 11	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA-SWATARA	2050305	BAINBRIDGE ST. BRIDGE IN HARRIS

PENNSYLVANIA NASQAN STATIONS



NATIONAL STREAM QUALITY ACCOUNTING NETWORK IN MARYLAND

PROGRAM DESCRIPTION: The National Stream Quality Accounting Network (NASQAN) in Maryland consists of three stations on streams draining into the Chesapeake Bay. The Towson, Maryland Office of the Mid-Atlantic District samples these stations. Daily records are kept of streamflow and water quality sampling is performed on a bi-monthly or quarterly basis depending on the station. The National Stream Quality Accounting Network was established by the U.S. Geological Survey in 1973 to provide a uniform basis for continually assessing the quality of streams in the U.S. Similar parameters are measured and similar sampling techniques frequency of sampling, and analytical methods are utilized at NASQAN stations throughout the nation.

PROGRAM OBJECTIVES: To determine surface-water quality trends and to account for mass transport of constituents.

DATE INITIATED: 1978

COORDINATING AGENCY:

U.S. Geological Survey
Mid-Atlantic District
Water Resources Division
208 Carroll Building
8600 LaSalle Road
Towson, Maryland 21204

FUNDING AGENCY: U.S. Geological Survey

PARTICIPATING AGENCY: U.S. Geological Survey (USGS)

INVESTIGATORS:

Program Chief	Dave Grason	USGS-Towson
Program Coordinator	Linda Zynjuk	USGS-Towson

PARAMETERS:

Air Temperature
Barometric Pressure
Streamflow

Water Column:
Temperature
Dissolved Oxygen
Specific Conductivity
pH
Alkalinity
Hardness
Total Nitrogen
Total Kjeldahl Nitrogen (wholewater)
Total Kjeldahl Nitrogen (filtrate)
Total Dissolved Nitrogen
Total Organic Nitrogen
Particulate Organic Nitrogen
Dissolved Organic Nitrogen
Nitrate
Nitrite
Nitrate + Nitrite
Ammonium
Total Phosphorus
Total Dissolved Phosphorus
Dissolved Inorganic Phosphorus
Total Organic Carbon
Dissolved Silica
Total Dissolved Solids

Turbidity
Fecal Coliform
Fecal Streptococci
Carbon Dioxide
Dissolved Aluminum
Dissolved Arsenic
Dissolved Barium
Dissolved Beryllium
Dissolved Cadmium
Dissolved Calcium
Dissolved Chloride
Dissolved Chromium
Dissolved Cobalt
Dissolved Copper
Dissolved Flouride
Dissolved Iron
Dissolved Lead
Dissolved Lithium
Dissolved Magnesium
Dissolved Manganese
Dissolved Mercury
Dissolved Molybdenum
Dissolved Nickel
Dissolved Potassium
Dissolved Selenium
Dissolved Silver
Dissolved Sodium
Dissolved Strontium
Dissolved Sulfate
Dissolved Vanadium
Dissolved Zinc

STATIONS: The three NASQAN stations located in Maryland are on the Choptank River near Greensboro, the Susquehanna River at the Conowingo Dam, and the Patuxent River at Bowie.

SAMPLE COLLECTION: Sampling is conducted on a regular basis at all NASQAN stations as well as during storm events. Cross-sectional and depth-integrated samples are collected quarterly on the Choptank and bi-monthly at the other two stations. Depth-integrated sampling is conducted along the stream cross-section at equal width increments in order to accurately sample the stream's depth and cross-sectional variability. At each section the sampler is lowered through the water column at equal transit rates. The samples are then composited in a churn splitter.

On the Susquehanna River at Conowingo Dam, cross-sectionally integrated grab samples are collected across the well-mixed turbine outflow which precludes the need for depth integrated samples. During storm events, samples are taken off the top of the spill gates in addition to the turbine outflow.

The stations on the Choptank and the Patuxent Rivers are equipped with automatic sampling devices which are used during storm events. These devices collect up to 24 discrete samples at a single intake over any period specified by the user. Linked to a flow meter, the sampler can be programmed to take samples at user specified increments of flow. As a result, flow weighted composite samples can be obtained.

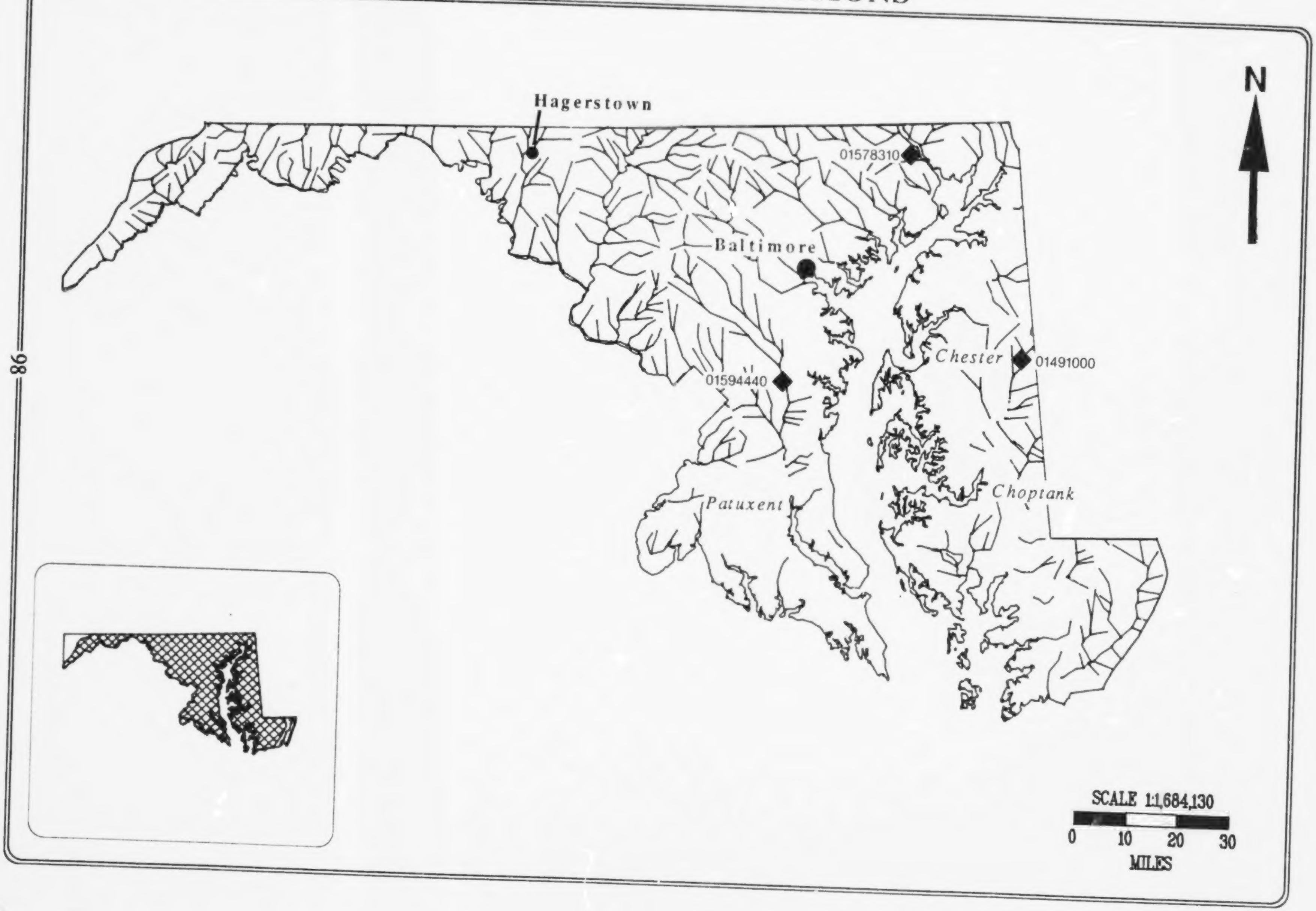
All samples are sent to the USGS National Water Quality Laboratory for analysis. Nutrient samples are treated with a mercuric chloride/sodium chloride solution, and chilled to less than 4 degrees C. Aluminum and other metals are treated with nitric acid to reach a pH of less than 2.0. Suspended Sediment analyses are performed at the USGS sediment laboratory in Harrisburg, Pennsylvania. Total Organic Carbon samples are shipped in glass in order to prevent contamination of the sample.

PROGRAM INTEGRATION: The NASQAN program is a subset of the USGS Collection of Basic Records Program (CBR). The three Maryland NASQAN stations are monitored as a part of the Maryland River Input Water Quality Program.

MARYLAND NASQAN STATIONS

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
01491000	38 59 50	75 47 09	BFL	EASTERN SHORE	CHOPTANK	2060005	2 MILES NE OF GREENSBORO, MD
01578310	39 39 31	76 10 28	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	DOWNSTREAM SIDE OF CONOWINGO DA
01594440	38 57 21	76 41 36	BFL	PATUXENT	PATUXENT	2060006	US RT. 50 BRIDGE NEAR BOWIE, MD

MARYLAND NASQAN STATIONS



NATIONAL STREAM QUALITY ACCOUNTING NETWORK IN THE DISTRICT OF COLUMBIA

PROGRAM DESCRIPTION: The National Stream Quality Accounting Network (NASQAN) in the District of Columbia, consists of a single station which is operated by the Towson, Maryland office of the Mid-Atlantic District. Daily records are kept of streamflow, and water quality sampling is performed on a bi-monthly basis. The National Stream Quality Accounting Network was established by the U.S. Geological Survey in 1973 to provide a uniform basis for continually assessing the quality of streams in the U.S. Similar parameters are measured and similar sampling techniques, frequency of sampling, and analytical methods are utilized at NASQAN stations throughout the nation.

PROGRAM OBJECTIVES: To determine surface-water quality trends and to account for mass transport of constituents.

DATE INITIATED: 1973

COORDINATING AGENCY:

U.S. Geological Survey
Mid-Atlantic District
Water Resources Division
208 Carroll Building
8600 LaSalle Road
Towson, Maryland 21204

FUNDING AGENCY: U.S. Geological Survey

PARTICIPATING AGENCY: U.S. Geological Survey-Towson (USGS-Towson)

INVESTIGATORS:

Program Chief	David Grason	USGS-Towson
Program Coordinator	Joel Blumquist	USGS-Towson

PARAMETERS:

Air Temperature
Barometric Pressure
Streamflow

Water Column:
Temperature
Dissolved Oxygen
Specific Conductivity
pH
Alkalinity
Hardness
Total Nitrogen
Total Kjeldahl Nitrogen (wholewater)
Total Kjeldahl Nitrogen (filtrate)
Total Dissolved Nitrogen
Particulate Organic Nitrogen
Total Organic Nitrogen
Dissolved Organic Nitrogen
Nitrate
Nitrite
Nitrate + Nitrite
Ammonium
Total Phosphorus
Total Dissolved Phosphorus
Dissolved Inorganic Phosphorus
Total Organic Carbon
Dissolved Silica
Total Dissolved Solids
Turbidity
Fecal Coliform

Fecal Streptococci
Carbon Dioxide
Dissolved Aluminum
Dissolved Arsenic
Dissolved Barium
Dissolved Beryllium
Dissolved Cadmium
Dissolved Calcium
Dissolved Chloride
Dissolved Chromium
Dissolved Cobalt
Dissolved Copper
Dissolved Flouride
Dissolved Iron
Dissolved Lead
Dissolved Lithium
Dissolved Magnesium
Dissolved Manganese
Dissolved Mercury
Dissolved Molybdenum
Dissolved Nickel
Dissolved Potassium
Dissolved Selenium
Dissolved Silver
Dissolved Sodium
Dissolved Strontium
Dissolved Sulfate
Dissolved Vanadium
Dissolved Zinc

STATIONS: The program's single station is located on the Potomac River at Chain Bridge.

SAMPLE COLLECTION: Depth-integrated sampling is conducted along the stream cross-section at equal width increments in order to accurately sample the stream's depth and cross sectional variability. At each section the sampler is lowered through the water column at equal transit rates. The samples are then composited in a churn splitter.

This station is equipped with an automatic sampling device which is used during storm events. This device collects up to 24 discrete samples at a single intake over any period specified by the user. Linked to a flow meter, the sampler can be programmed to take samples at user specified increments of flow. As a result, flow weighted composite samples can be obtained.

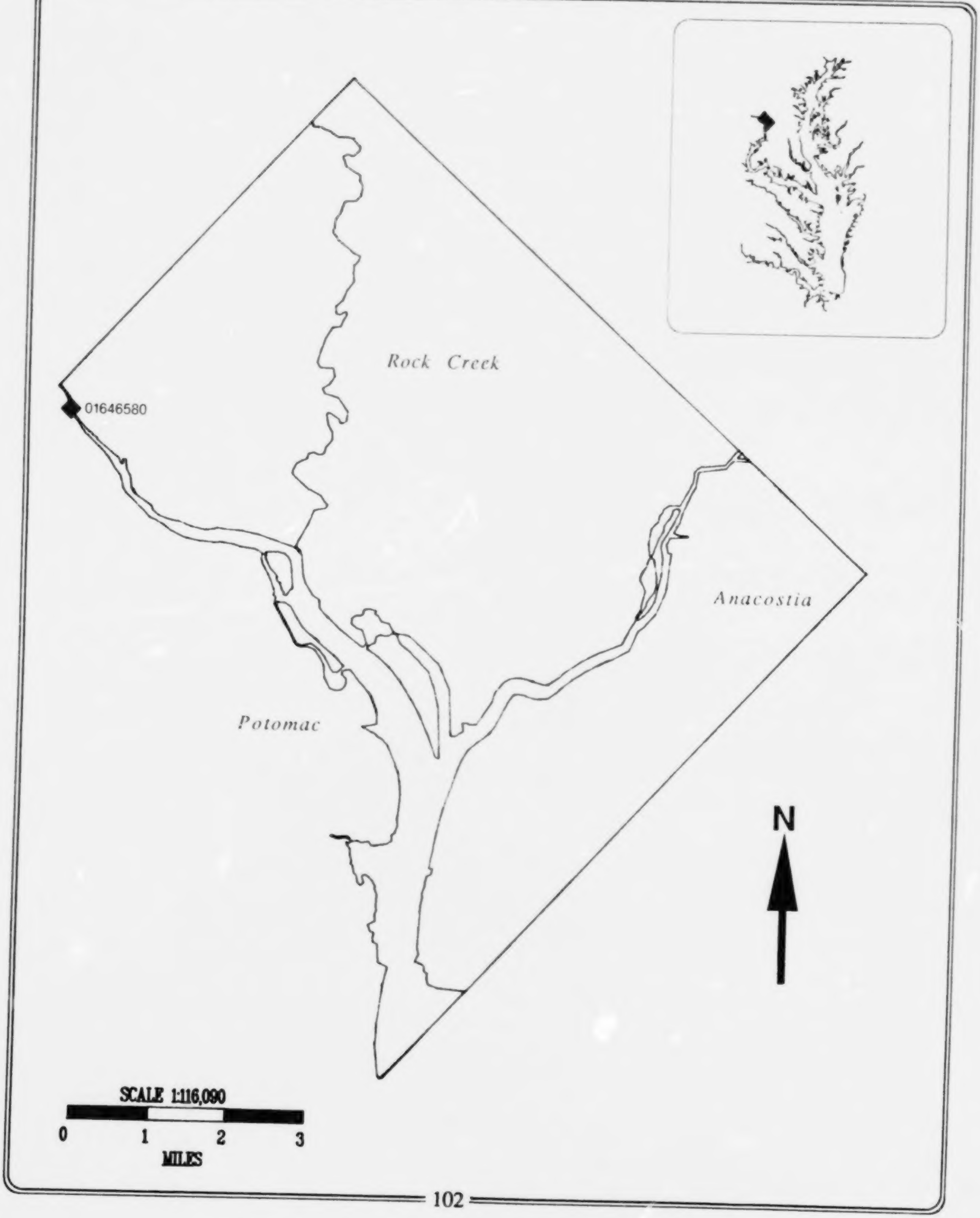
All samples are sent to the USGS National Water Quality Laboratory for analysis. Nutrient samples are treated with a mercuric chloride/sodium chloride solution, and chilled to less than 4 degrees C. Aluminum and other metals are treated with nitric acid to reach a pH of less than 2.0. Suspended Sediment analyses are performed at the USGS sediment laboratory in Harrisburg, Pennsylvania. Total Organic Carbon samples are shipped in glass in order to prevent contamination of the sample.

PROGRAM INTEGRATION: The NASQAN program is a subset of the USGS Collection of Basic Records Program. This station is also monitored as a part of the Maryland River Input Fall Line Water Quality Program.

DISTRICT OF COLUMBIA NASQAN STATIONS

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
01646580	38 55 46	77 07 02	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	CHAIN BRIDGE IN WASHINGTON, DC

DISTRICT OF COLUMBIA NASQAN STATIONS



NATIONAL STREAM QUALITY ACCOUNTING NETWORK IN VIRGINIA

PROGRAM DESCRIPTION: The National Stream Quality Accounting Network (NASQAN) consists of five stations located in Virginia on streams draining into the Chesapeake Bay. Daily records are kept of streamflow, and water quality sampling is performed on a bi-monthly basis. The National Stream Quality Accounting Network was established by the U.S. Geological Survey in 1973 to provide a uniform basis for continually assessing the quality of streams in the U.S. The same parameters are measured and similar sampling techniques, frequency of sampling, and analytical methods are utilized at NASQAN stations throughout the nation.

PROGRAM OBJECTIVES: To provide a bank of water quality data for State and Federal planning and management programs, and to develop a data base against which the short-term records acquired in areal studies can be compared.

DATE INITIATED: 1974 - 1979 (depending on station)

COORDINATING AGENCY:

U.S. Geological Survey
Mid-Atlantic District
Water Resources Division
3600 West Broad Street, Room 606
Richmond, Virginia 23230

FUNDING AGENCY: U.S. Geological Survey

PARTICIPATING AGENCY: U.S. Geological Survey-Richmond (USGS-Richmond)

INVESTIGATORS:

Project Chief	Dennis D. Lynch	USGS-Richmond

PARAMETERS:

Air Temperature
Barometric Pressure
Streamflow

Water Column:
Temperature
Dissolved Oxygen
Specific Conductivity
pH
Alkalinity
Hardness
Total Nitrogen
Total Kjeldahl Nitrogen (wholewater)
Total Kjeldahl Nitrogen (filtrate)
Total Dissolved Nitrogen
Total Organic Nitrogen
Particulate Organic Nitrogen
Dissolved Organic Nitrogen
Nitrate
Nitrite
Nitrate + Nitrite
Ammonium
Total Phosphorus
Total Dissolved Phosphorus
Dissolved Inorganic Phosphorus
Total Organic Carbon
Dissolved Silica
Total Dissolved Solids
Turbidity
Fecal Coliform
Fecal Streptococci
Chloride

Sulfate
Dissolved Aluminum
Calcium
Magnesium
Sodium
Potassium
Flouride
Carbon Dioxide
Arsenic
Barium
Beryllium
Cadmium
Chromium
Cobalt
Copper
Iron
Lead
Lithium
Manganese
Mercury
Molybdenum
Nickel
Selenium
Silver
Strontium
Vanadium
Zinc

STATIONS: The five Virginia NASQAN stations are located at or near the fall line of the James, Appomattox, Rappahannock, Mattaponi and Pamunkey rivers.

SAMPLE COLLECTION: Depth-integrated sampling is conducted along the stream cross-section at equal width increments in order to accurately sample the stream's depth and cross-sectional variability. At each section the sampler is lowered through the water column at equal transit rates. The samples are then composited in a churn splitter.

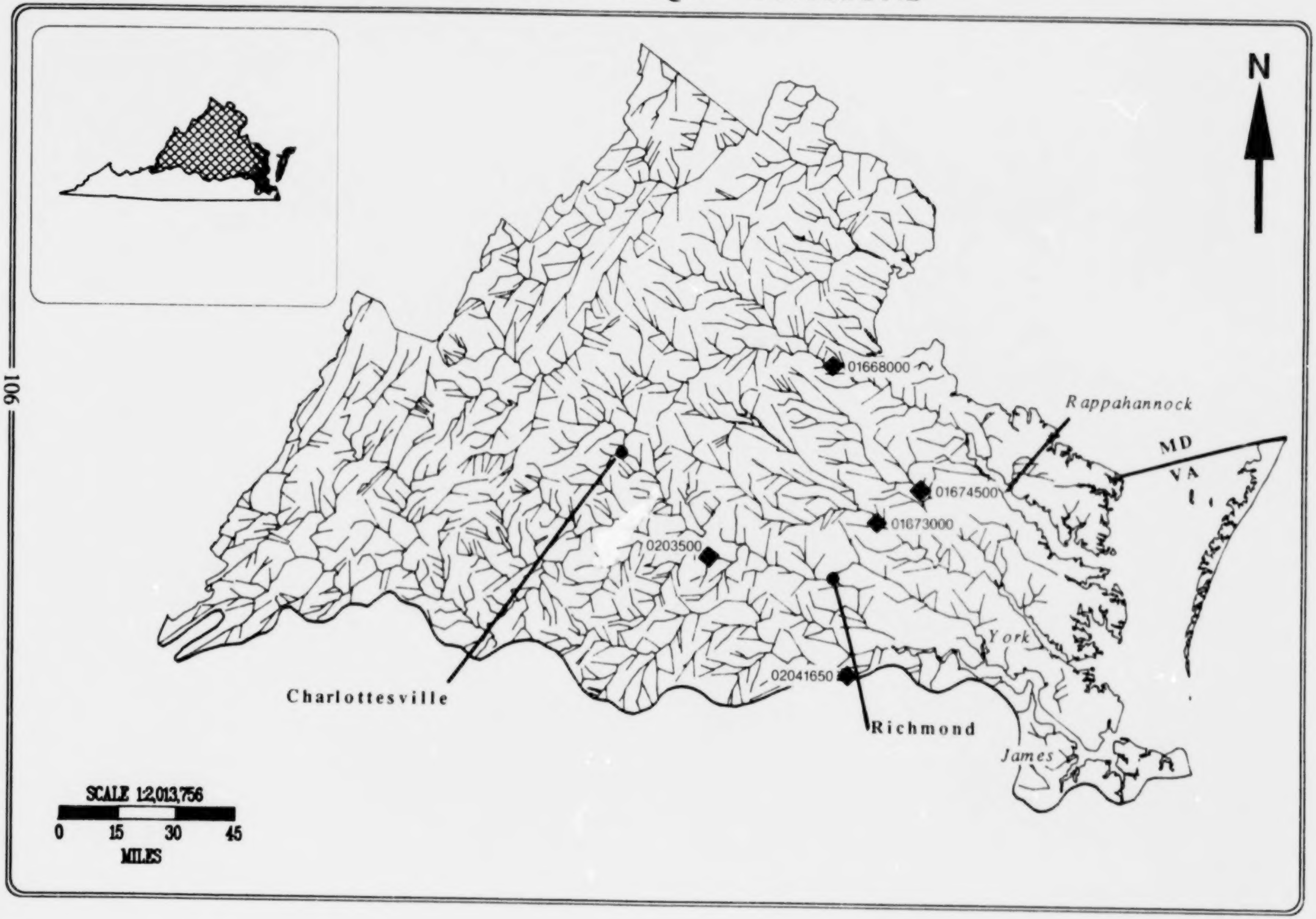
All samples are sent to the USGS National Water Quality Laboratory for analysis. Nutrient samples are treated with a mercuric chloride/sodium chloride solution, and chilled to less than 4 degrees C. Aluminum and other metals are treated with nitric acid to reach a pH of less than 2.0. Suspended Sediment analyses are performed at the USGS sediment laboratory in Harrisburg, Pennsylvania.

PROGRAM INTEGRATION: The NASQAN program is a subset of the USGS Collection of Basic Records Program. The five Virginia NASQAN stations are also monitored as a part of the Virginia Fall Line Monitoring Program.

VIRGINIA NASQAN STATIONS

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
01668000	38 19 20	77 31 05	AFL	RAPPAHANNOCK	LOWER RAPPAHANNOCK	2080104	3.8 MILES UPSTREAM FROM FREDERI
01673000	37 46 03	77 19 57	BFL	YORK	PAMUNKEY	2080106	2 MILES EAST OF HANOVER, VA
01674500	37 53 16	77 09 48	BFL	YORK	MATTAPONI	2080105	2.4 MILES NORTH OF BEULAHVILLE,
0203500	37 40 15	78 05 10	AFL	JAMES	MIDDLE JAMES-WILLIS	2080205	MID-JAMES AT CARTERSVILLE, VA
02041650	37 13 28	77 28 32	AFL	JAMES	APPOMATTOX	2080207	APPOMATTOX RIVER AT MATOACA, VA

VIRGINIA NASQAN STATIONS



NATIONAL STREAM QUALITY ACCOUNTING NETWORK IN WEST VIRGINIA

PROGRAM DESCRIPTION: The West Virginia National Stream Quality Accounting Network (NASQAN) consists of two stations on streams draining into the Chesapeake Bay. These two stations are sampled by the Towson, Maryland office of the Mid-Atlantic District. Daily records are kept of streamflow and water quality sampling is performed on a bi-monthly basis. The National Stream Quality Accounting Network was established by the U.S. Geological Survey in 1973 to provide a uniform basis for continually assessing the quality of streams in the U.S. Similar parameters are measured and similar sampling techniques, frequency of sampling and analytical methods are utilized at NASQAN stations throughout the nation.

PROGRAM OBJECTIVES: To determine surface-water quality trends and to account for mass transport of constituents in the West Virginia portion of the Chesapeake Bay basin.

DATE INITIATED: October 1979

COORDINATING AGENCY:

U.S. Geological Survey
Mid-Atlantic District
Water Resources Division
208 Carroll Building
8600 LaSalle Road
Towson, Maryland 21204

FUNDING AGENCY: U.S. Geological Survey

PARTICIPATING AGENCY: U.S. Geological Survey-Towson (USGS-Towson)

INVESTIGATORS:

Program Chief	David Grason	USGS-Towson
Program Coordinator	Joel Blumquist	USGS-Towson

PARAMETERS:

Air Temperature
Barometric Pressure
Streamflow

Water Column:
Temperature
Dissolved Oxygen
Specific Conductivity
pH
Alkalinity
Hardness
Total Kjeldahl Nitrogen
Nitrate + Nitrite
Ammonium

Total Phosphorus
Total Dissolved Phosphorus
Dissolved Inorganic Phosphorus
Dissolved Silica
Total Dissolved Solids
Suspended Sediment
Turbidity
Fecal Coliform
Fecal Streptococci
Carbon Dioxide
Dissolved Aluminum
Dissolved Arsenic
Dissolved Barium
Dissolved Beryllium

Dissolved Cadmium
Dissolved Calcium
Dissolved Chloride
Dissolved Chromium
Dissolved Cobalt
Dissolved Copper
Dissolved Flouride
Dissolved Iron
Dissolved Lead
Dissolved Lithium
Dissolved Magnesium
Dissolved Manganese
Dissolved Mercury
Dissolved Molybdenum
Dissolved Nickel
Dissolved Potassium
Dissolved Selenium
Dissolved Silver
Dissolved Sodium
Dissolved Strontium
Dissolved Sulfate
Dissolved Vanadium
Dissolved Zinc

STATIONS: The two NASQAN stations in West Virginia are located on the Potomac River at Shepherdstown and on the Shenandoah River at Millville.

SAMPLE COLLECTION: Depth-integrated sampling is conducted along the stream cross-section at equal width increments in order to accurately sample the stream's depth and cross sectional variability. At each section the sampler is lowered through the water column at equal transit rates. The samples are then composited in a churn splitter.

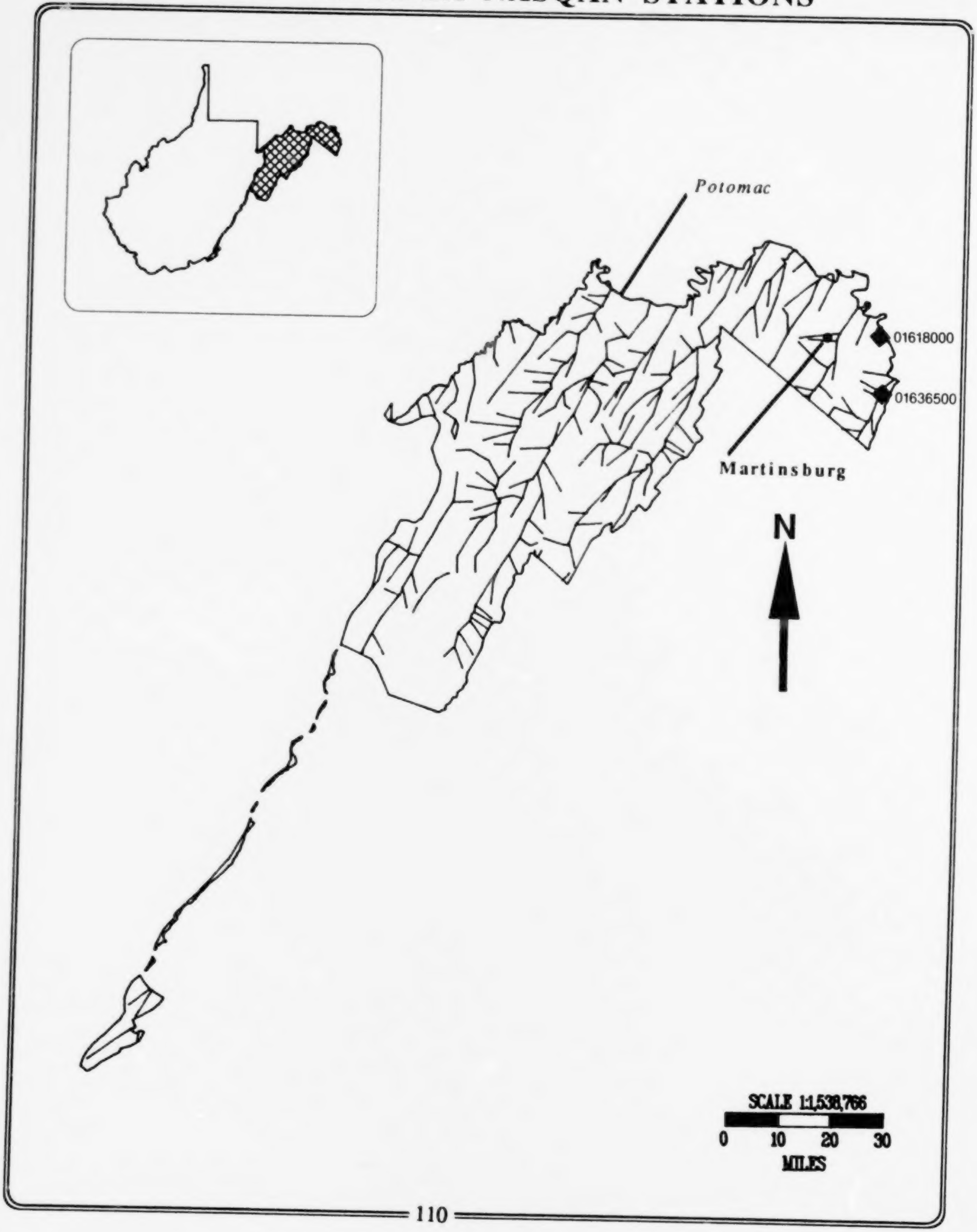
All samples are sent to the USGS National Water Quality Laboratory for analysis. Nutrient samples are treated with a mercuric chloride/sodium chloride solution, and chilled to less than 4 degrees C. Aluminum and other metals are treated with nitric acid to reach a pH of less than 2.0. Suspended Sediment analyses are performed at the USGS sediment laboratory in Harrisburg, Pennsylvania.

PROGRAM INTEGRATION: The NASQAN program is a subset of the USGS Collection of Basic Records Program.

WEST VIRGINIA NASQAN STATIONS

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
01618000	39 26 04	77 48 07	AFL	POTOMAC	CONOCOCHEAGUE-OPEQUON	2070004	NEAR RUMSEY BRIDGE AT SHEPARDST
01636500	39 16 55	77 47 22	AFL	POTOMAC	SHENANDOAH	2070007	1 MILE UPSTREAM FROM MILLVILLE,

WEST VIRGINIA NASQAN STATIONS



NATIONAL HYDROLOGIC BENCH-MARK PROGRAM IN PENNSYLVANIA

PROGRAM DESCRIPTION: The National Hydrologic Bench-mark Program in Pennsylvania was established by the U.S. Geological Survey (USGS) to provide data on selected stream basins which remain relatively unaffected by human population growth and its accompanying demand on natural resources. One bench-mark station is located in the Pennsylvania portion of the Chesapeake Bay basin and is visited on a quarterly basis.

PROGRAM OBJECTIVES: To provide a long-term record of water quality data where little human influence is felt on the environment.

DATE INITIATED: 1964

COORDINATING AGENCY:

U.S. Geological Survey
Pennsylvania District
Water Resources Division
P.O. Box 1107
Harrisburg, Pennsylvania 17108

FUNDING AGENCY: U.S. Geological Survey

PARTICIPATING AGENCY: U.S. Geological Survey-Harrisburg (USGS-Harrisburg)

INVESTIGATORS:

Subdistrict Chief	David Wangsness	USGS-Harrisburg
Principal Investigator	Robert Hainly	USGS-Harrisburg

PARAMETERS:

Streamflow
Temperature
Dissolved Oxygen
Specific Conductivity
pH
Alkalinity
Hardness
Total Kjeldahl Nitrogen
Nitrate+Nitrite
Dissolved Ammonium
Total Phosphorus
Total Dissolved Phosphorus
Dissolved Inorganic Phosphorus
Dissolved Silica
Total Dissolved Solids
Suspended Sediments
Turbidity
Fecal Coliform
Fecal Streptococci
Carbon Dioxide
Dissolved Aluminum
Dissolved Arsenic
Dissolved Barium
Dissolved Beryllium
Dissolved Cadmium
Dissolved Calcium
Dissolved Chloride
Dissolved Chromium
Dissolved Cobalt
Dissolved Copper
Dissolved Flouride
Dissolved Iron
Dissolved Lead
Dissolved Lithium
Dissolved Magnesium
Dissolved Manganese

Dissolved Mercury
Dissolved Molybdenum
Dissolved Nickel
Dissolved Potassium
Dissolved Selenium
Dissolved Silver
Dissolved Sodium
Dissolved Strontium
Dissolved Sulfate
Dissolved Vanadium
Dissolved Zinc

Radiochemical Data

STATIONS: This station is located in the West Branch Susquehanna River basin on Young Womans Creek near Renovo, Pennsylvania.

SAMPLE COLLECTION: Sampling is conducted on a quarterly basis. Depth-integrated sampling is conducted along the stream cross-section at equal width increments in order to accurately sample the stream's depth and cross-sectional variability. At each section the sampler is lowered through the water column at equal transit rates. The samples are then composited in a churn splitter.

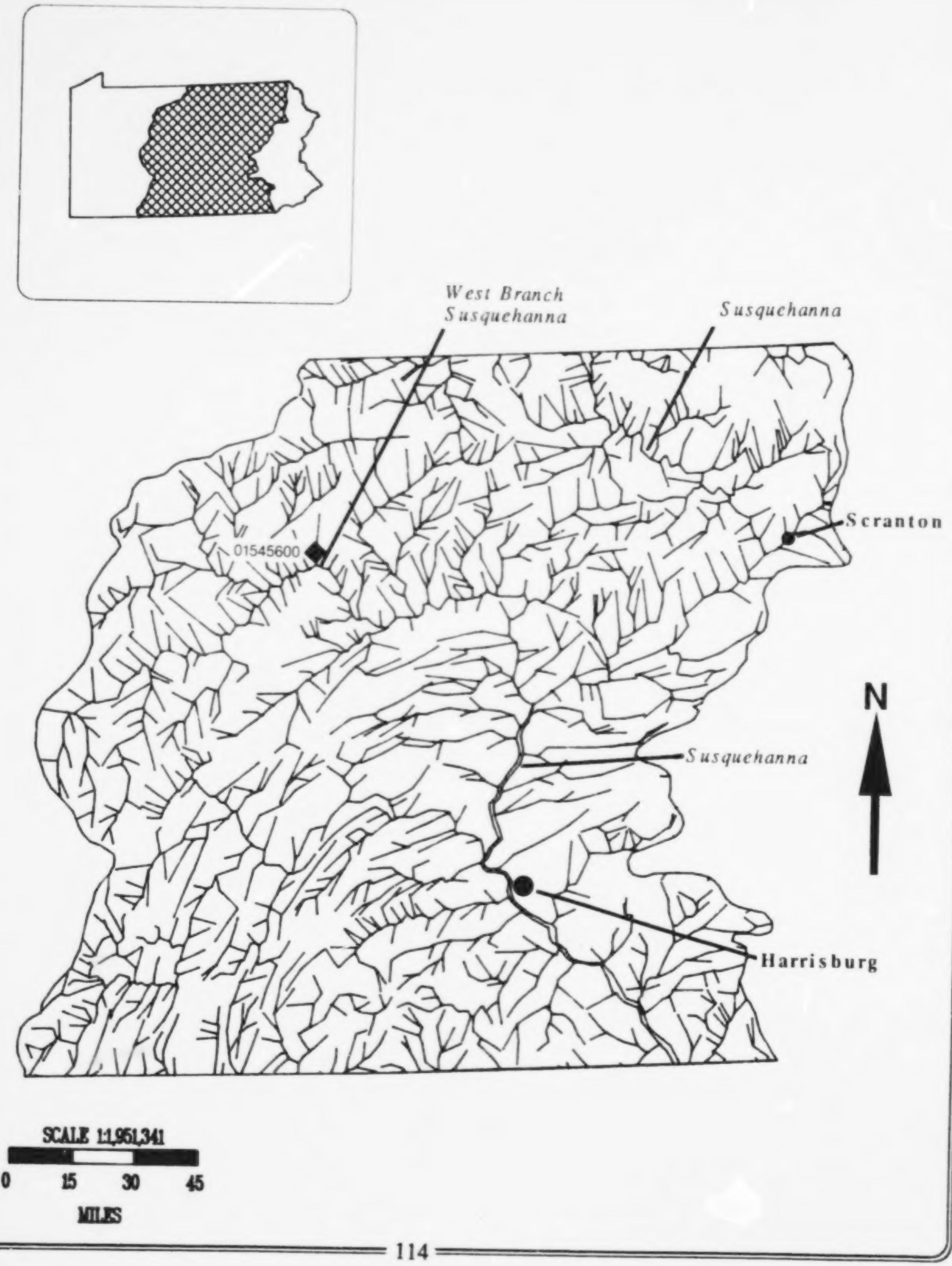
All samples are sent to the USGS National Water Quality Laboratory for analysis. Nutrient samples are treated with a mercuric chloride/sodium chloride solution, and chilled to less than 4 degrees C. Aluminum and other metals are treated with nitric acid to reach a pH of less than 2.0. Suspended Sediment analyses are performed at the USGS sediment laboratory in Harrisburg, Pennsylvania.

PROGRAM INTEGRATION: The bench-mark program is a subset of the USGS Streamflow Gaging Program.

PENNSYLVANIA BENCH-MARK STATIONS

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
01545600	41 23 22	77 41 28	AFL	SUSQUEHANNA	MIDDLE WEST BRANCH SUSQUEHANNA	2050203	5 MILES NE OF RENOVO, PA

PENNSYLVANIA BENCH-MARK STATIONS



NATIONAL HYDROLOGIC BENCH-MARK PROGRAM IN VIRGINIA

PROGRAM DESCRIPTION: The National Hydrologic Bench-mark Program in Virginia was established by the U.S. Geological Survey (USGS) to provide data on selected stream basins which remain relatively unaffected by human population growth and its accompanying demand on natural resources. One bench-mark station is located in the Virginia portion of the Chesapeake Bay basin and is visited on a quarterly basis.

PROGRAM OBJECTIVES: To provide a long-term record of water quality data where little human influence is felt on the environment.

DATE INITIATED: 1966

COORDINATING AGENCY:
U.S. Geological Survey
Mid-Atlantic District
Water Resources Division
3600 West Broad Street
Richmond, Virginia 23230

FUNDING AGENCY: U.S. Geological Survey

PARTICIPATING AGENCY: U.S. Geological Survey-Richmond (USGS-Richmond)

INVESTIGATORS:

Principal Investigator	Dennis Lynch	USGS-Richmond

PARAMETERS:

Barometric Pressure
Streamflow

Water Column:
Temperature
Dissolved Oxygen
Specific Conductivity
pH
Alkalinity
Hardness
Total Kjeldahl Nitrogen
Nitrate and Nitrite
Total Ammonia
Dissolved Ammonia
Total Phosphorus
Total Dissolved Phosphorus
Dissolved Silica
Total Dissolved Solids
Suspended Sediments
Suspended Sediments (% finer than 0.062mm)
Turbidity
Fecal Coliform
Fecal Streptococci
Carbon Dioxide
Dissolved Arsenic
Dissolved Barium
Dissolved Beryllium
Dissolved Cadmium
Dissolved Calcium
Dissolved Chloride
Dissolved Chromium
Dissolved Cobalt
Dissolved Copper
Dissolved Iron
Dissolved Lead
Dissolved Lithium
Dissolved Magnesium

Dissolved Manganese
Dissolved Mercury
Dissolved Molybdenum
Dissolved Nickel
Dissolved Potassium
Dissolved Selenium
Dissolved Silver
Dissolved Sodium
Dissolved Strontium
Dissolved Sulfate
Dissolved Vanadium
Dissolved Zinc

Dissolved Gross Alpha
(UG/L AS U-NAT)
Total Suspended Gross Alpha
(UG/L AS U-NAT)
Dissolved Gross Beta
(PCI/L AS CS-137)
Total Suspended Gross Beta
(PCI/L AS CS-137)
Dissolved Gross Beta
(PCI/L AS ST/YT-90)
Total Suspended Gross Beta
(PCI/L AS ST/YT-90)
Dissolved Radium 226, Radon Method
Dissolved Uranium, Extraction

STATIONS: This station is located in the James River basin on Holiday Creek Near Andersonville, Virginia.

SAMPLE COLLECTION: Cross-sectional and depth-integrated samples are collected on a quarterly basis.

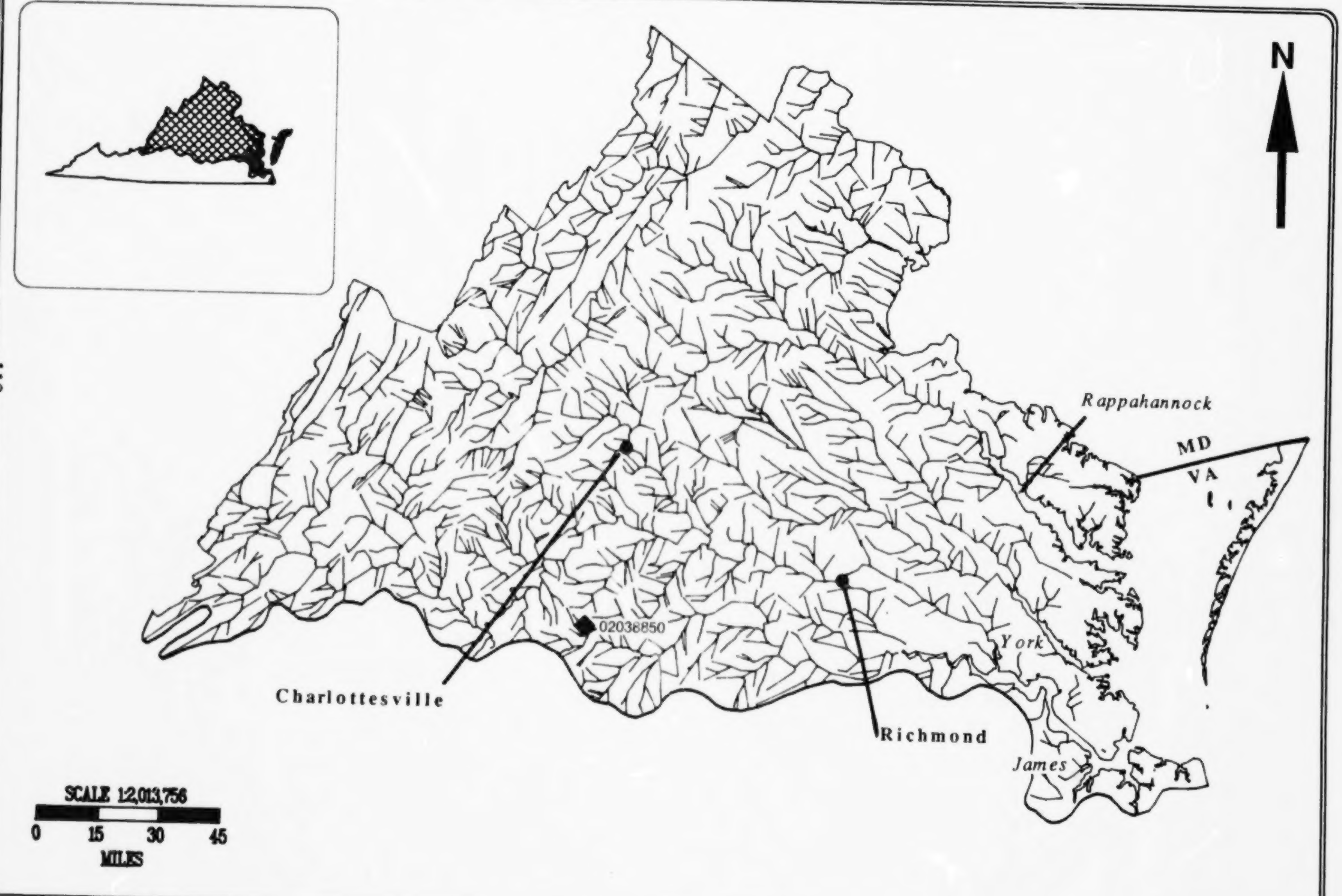
All samples are sent to the USGS National Water Quality Laboratory for analysis. Nutrient samples are treated with a mercuric chloride/sodium chloride solution, and chilled to less than 4 degrees C. Aluminum and other metals are treated with nitric acid to reach a pH of less than 2.0. Suspended Sediment analyses are performed at the USGS sediment laboratory in Harrisburg, Pennsylvania.

PROGRAM INTEGRATION: The bench-mark program is a subset of the USGS Streamflow Gaging Program.

VIRGINIA BENCH-MARK STATIONS

STATION NAME (S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
02038850	37 24 55	78 38 10	AFL	JAMES	APPOMATTOX	2080207	5.2 MILES SW OF ANDERSONVILLE,

VIRGINIA BENCH-MARK STATIONS



USGS STREAMFLOW GAGING STATION NETWORK IN NEW YORK

PROGRAM DESCRIPTION: The U.S. Geological Survey (USGS) maintains a network of 23 streamflow gaging stations around the state of New York within the Chesapeake Bay basin. The data collected from this long-term streamflow gaging network represent part of the information gathered through the National Water Data System conducted by the USGS and cooperating State and Federal agencies in New York. In addition, since desired streamflow information cannot be fully achieved by the number of streamflow gaging stations, USGS collects limited streamflow data at 21 crest-stage, partial-record stations. Measurements are also made at various other stations.

PROGRAM OBJECTIVES: To provide basic information for hydrologic appraisals, environmental impact assessments, and energy related studies.

DATE INITIATED: 1903 - 1974 (depending on station)

COORDINATING AGENCY:
U.S. Geological Survey
New York District
Water Resources Division
U.S. Post Office and Courthouse
P.O. Box 1669
Albany, New York 12201

FUNDING AGENCIES:
U.S. Geological Survey
New York State Department of Environmental Conservation
New York State Department of Transportation
U.S. Army Corps of Engineers, Buffalo District
County of Cortland

PARTICIPATING AGENCY: U.S. Geological Survey-Albany (USGS-Albany)

INVESTIGATORS:

Principal Investigator	James Campbell	USGS-Albany

PARAMETERS:

Average Discharge
Extremes for Period of Record
Extremes Outside Period of Record
Extremes for Current Year
Mean Daily Average

STATIONS: This network consists of 23 stations located within the Susquehanna River basin. In addition to these, 21 crest-stage partial-record stations are also monitored.

SAMPLE COLLECTION: Data obtained at a complete-record gaging station consist of a continuous record of stage, individual measurements of discharge throughout a range of stages, and notations regarding factors that may affect the relationship between stage and discharge. These data, together with supplemental information such as weather records, are used to compute average daily discharges.

All stations are equipped with digital recorders for continuous records of stage, and most are outfitted with satellite telemetry. Graphic recorders are also located at stations where ice frequently occurs. Measurements of discharge are made with current meters using methods adopted by the U.S. Geological Survey. Stations are visited every 6 weeks to ensure that all equipment is working properly. At this time, partial-record stations are also visited and measurements taken.

PROGRAM INTEGRATION: The New York Streamflow Gaging Network is a subset of a national program coordinated by the U.S. Geological Survey.

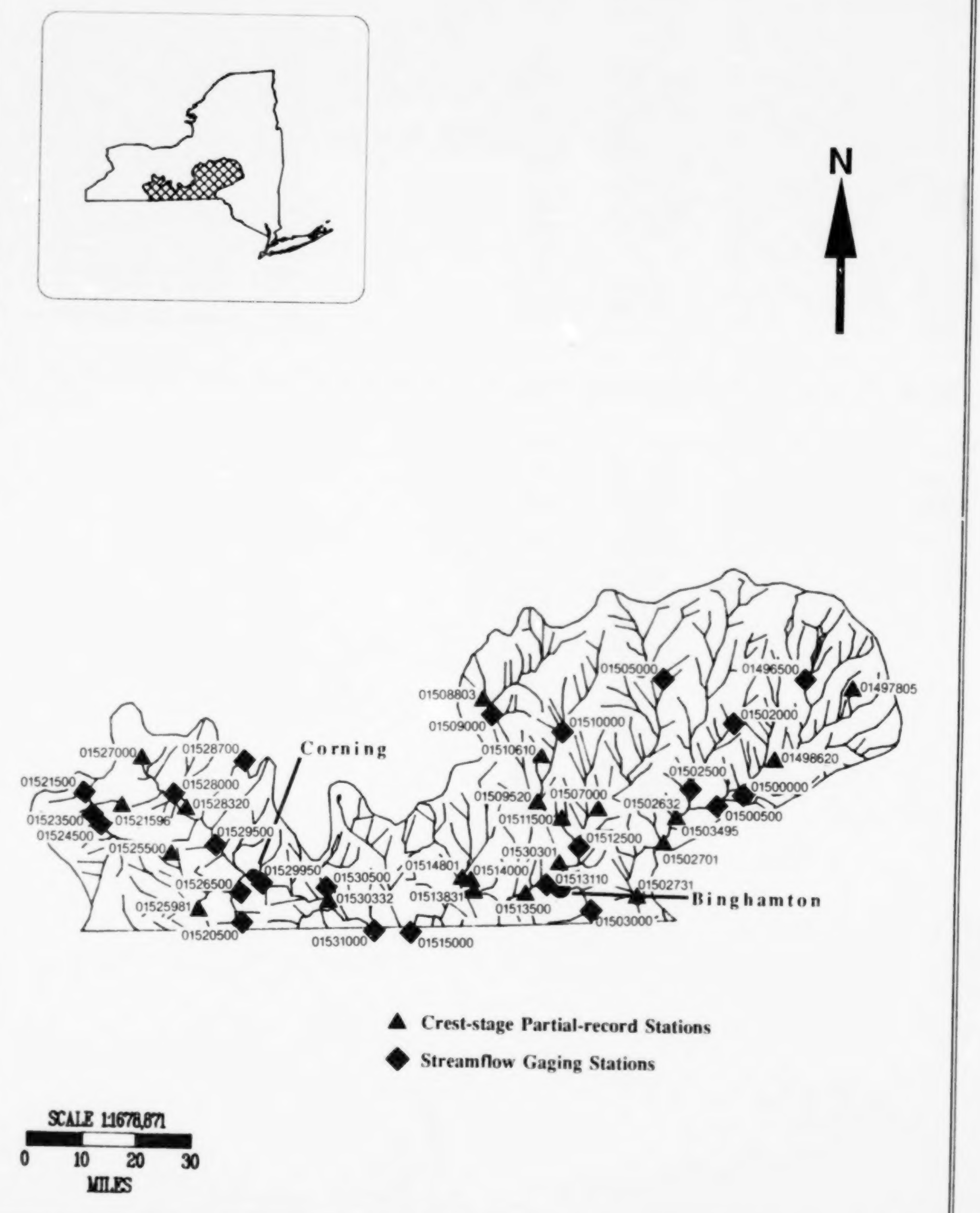
NEW YORK STREAMFLOW GAGING STATIONS

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
01496500	42 39 56	74 57 36	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA	2050101	OAKS CREEK AT INDEX, NY
01500000	42 20 00	75 14 07	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA	2050101	OULEOUT CREEK AT EAST SIDNEY, N
01500500	42 19 17	75 19 01	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA	2050101	SUSQUEHANNA AT UNADILLA, NY
01502000	42 32 43	75 14 22	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA	2050101	BUTTERNUT CREEK AT MORRIS, NY
01502500	42 22 40	75 24 23	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA	2050101	UNADILLA RIVER AT ROCKDALE, NY
01503000	42 02 07	75 48 12	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA	2050101	SUSQUEHANNA RIVER AT CONKLIN, N
01505000	42 40 43	75 30 39	AFL	SUSQUEHANNA	CHENANGO	2050102	CHENANGO RIVER AT SHERBURNE, NY
01509000	42 36 10	76 09 35	AFL	SUSQUEHANNA	CHENANGO	2050102	TIOUGHNIOGA RIVER AT CORTLAND,
01510000	42 32 28	75 54 00	AFL	SUSQUEHANNA	CHENANGO	2050102	OTSELIC RIVER AT CINNCINNATUS,
01512500	42 13 05	75 50 55	AFL	SUSQUEHANNA	CHENANGO	2050102	CHENANGO RIVER NEAR CHENANGO FO
01513110	42 06 37	75 58 30	AFL	SUSQUEHANNA	WEGO-WAPPASENING	2050103	SUSQUEHANNA RIVER AT JOHNSON CI
01515000	41 59 05	76 30 05	AFL	SUSQUEHANNA	WEGO-WAPPASENING	2050103	SUSQUEHANNA RIVER NEAR WAVERLY,
01520500	42 01 43	77 07 57	AFL	SUSQUEHANNA	TIOGA	2050104	TIOGA RIVER AT LINDLEY, NY
01521500	42 23 45	77 42 42	AFL	SUSQUEHANNA	TIOGA	2050104	CANISTEO RIVER AT ARKPORT, NY
01523500	42 20 05	77 41 00	AFL	SUSQUEHANNA	TIOGA	2050104	CANACADEA CREEK NER HORNELL, NY
01524500	42 18 50	77 39 05	AFL	SUSQUEHANNA	TIOGA	2050104	CANISTEO RIVER AT HORNELL, NY
01526500	42 07 16	77 07 46	AFL	SUSQUEHANNA	TIOGA	2050104	TIOGA RIVER NEAR ERWINS, NY
01528000	42 23 18	77 21 29	AFL	SUSQUEHANNA	CHEMUNG	2050105	FIVEMILE CREEK NEAR KANONO, NY
01528700	42 29 06	77 06 39	AFL	SUSQUEHANNA	CHEMUNG	2050105	DIVERSION FROM WANETA LAKE TO K
01529500	42 15 09	77 13 01	AFL	SUSQUEHANNA	CHEMUNG	2050105	COHOCTON RIVER NEAR CAMPBELL, N
01529950	42 08 47	77 03 28	AFL	SUSQUEHANNA	CHEMUNG	2050105	CHEMUNG RIVER AT CORNING, NY
01530500	42 06 16	76 47 54	AFL	SUSQUEHANNA	CHEMUNG	2050105	NEWTON CREEK AT ELMIRA, NY
01531000	42 00 08	76 38 06	AFL	SUSQUEHANNA	CHEMUNG	2050105	CHEMUNG RIVER AT CHEMUNG, NY

NEW YORK STREAMFLOW CREST-STAGE PARTIAL-RECORD STATIONS

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
01497805	42 38 01	74 47 45	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA	2050101	LITTLE ELK CREEK NEAR WESTFORD,
01498620	42 26 24	75 06 01	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA	2050101	SUSQUEHANNA RIVER AT ONEONTA, N
01502632	42 17 29	75 28 36	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA	2050101	SUSQUEHANNA RIVER AT BAINBRIDGE
01502701	42 13 38	75 31 27	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA	2050101	SUSQUEHANNA RIVER AT AFTON, NY
01502731	42 04 28	75 38 17	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA	2050101	SUSQUEHANNA RIVER AT WINDSOR, N
01503495	42 17 29	75 28 36	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA	2050101	SUSQUEHANNA RIVER AT BINGHAMTON
01507000	42 19 28	75 46 18	AFL	SUSQUEHANNA	CHENANGO	2050102	CHENANGO RIVER AT GREENE, NY
01508803	42 38 18	76 10 36	AFL	SUSQUEHANNA	CHENANGO	2050102	WEST BRANCH TIOUGHNIOGA AT HOME
01509520	42 20 58	75 59 58	AFL	SUSQUEHANNA	CHENANGO	2050102	TIOUGHNIOGA RIVER AT LISLE, NY
01510610	42 28 03	75 59 19	AFL	SUSQUEHANNA	CHENANGO	2050102	MERRILL CREEK TRIBUTARY NEAR TE
01511500	42 17 53	75 54 33	AFL	SUSQUEHANNA	CHENANGO	2050102	TIOUGHNIOGA RIVER AT ITASKA, NY
01513110	42 06 37	75 58 30	AFL	SUSQUEHANNA	WEGO-WAPPASENING	2050103	SUSQUEHANNA RIVER AT JOHNSON CI
01513831	42 06 05	76 15 41	AFL	SUSQUEHANNA	WEGO-WAPPASENING	2050103	SUSQUEHANNA RIVER AT OWEGO, NY
01514000	42 07 45	76 16 15	AFL	SUSQUEHANNA	WEGO-WAPPASENING	2050103	OWEGO CREEK NEAR OWEGO, NY
01514801	42 08 19	76 17 23	AFL	SUSQUEHANNA	WEGO-WAPPASENING	2050103	CATATONK CREEK NEAR OWEGO, NY
01521596	42 22 01	77 34 33	AFL	SUSQUEHANNA	TIOGA	2050104	BIG CREEK NEAR HOWARD, NY
01525500	42 13 20	77 25 05	AFL	SUSQUEHANNA	TIOGA	2050104	CANISTEO RIVER AT WEST CAMERON,
01525981	42 04 20	77 17 57	AFL	SUSQUEHANNA	TIOGA	2050104	TUSCARORA CREEK NEAR SOUTH ADDI
01527000	42 30 00	77 30 02	AFL	SUSQUEHANNA	CHEMUNG	2050105	COHOCTON RIVER AT COHOCTON, NY
01528320	42 20 36	77 20 39	AFL	SUSQUEHANNA	CHEMUNG	2050105	COHOCTON RIVER AT BATH, NY
01530301	42 10 43	75 55 32	AFL	SUSQUEHANNA	CHENANGO	2050102	CUTHRIE RUN NEAR BIG FLATS, NY
01530332	42 05 11	76 48 05	AFL	SUSQUEHANNA	CHEMUNG	2050105	CHEMUNG RIVER AT ELMIRA, NY

NEW YORK STREAMFLOW GAGING STATIONS



USGS STREAMFLOW GAGING STATION NETWORK IN PENNSYLVANIA

PROGRAM DESCRIPTION: The U.S. Geological Survey (USGS) maintains a network of 88 streamflow gaging stations around the state of Pennsylvania within the Chesapeake Bay basin. The data collected from this long-term streamflow gaging network represent part of the information gathered through the National Water Data System conducted by the USGS and cooperating State and Federal agencies. Since desired streamflow information cannot be achieved with this number of streamflow gaging stations alone, the USGS also collects limited streamflow data at 95 partial-record stations within Pennsylvania's Chesapeake Bay basin. Measurements of discharge are also made at various other stations.

PROGRAM OBJECTIVES: To provide basic information for hydrologic appraisals, environmental impact assessments, and energy related studies.

DATE INITIATED: 1890 - 1983, (depending on station)

COORDINATING AGENCY:

U.S. Geological Survey
Pennsylvania District
Water Resources Division
P.O. Box 1107
Harrisburg, Pennsylvania 17108

FUNDING AGENCIES:

U.S. Geological Survey
Pennsylvania Department of Environmental Resources
Susquehanna River Basin Commission
City of Harrisburg
Letort Regional Authority
U.S. Army Corps of Engineers
National Weather Service
Lancaster County Planning Commission
University Area Joint Authority

PARTICIPATING AGENCIES:

U.S. Geological Survey-Harrisburg (USGS-Harrisburg)
Pennsylvania Department of Environmental Resources (PADER)
Safe Harbor Water Power Corporation
Pennsylvania Gas and Water
Hershey Chocolate Corporation
P.H. Glatfelter Company
York Water Company
City of Lancaster
City of Harrisburg
U.S. Army Corps of Engineers (COE)
National Weather Service (NWS)

INVESTIGATORS:

Subdistrict Chief	David Wangsness	USGS - Harrisburg
Principal Investigator	Robert Hainly	USGS - Harrisburg

PARAMETERS:

Average Discharge
Extremes for Period of Record
Extremes Outside Period of Record
Extremes for Current Year
Mean Daily Average

STATIONS: This network consists of 88 stations located throughout the Pennsylvania portion of the Chesapeake Bay basin. In addition to these, 95 partial-record stations are also monitored.

SAMPLE COLLECTION: Data obtained at a complete-record gaging station consists of a continuous record of stage, individual measurements of discharge throughout a range of stages, and notations regarding factors that may affect the relationship between stage and discharge. These data, together with supplemental information such as weather records, are used to compute average daily discharges.

Every complete-record station is equipped with a digital recorder and most are equipped with data collection platforms or graphic recorders. Stations are visited approximately every six weeks to ensure that all equipment is working properly. At this time, partial-record stations are also visited and peak-stage measurements recorded. Miscellaneous stations are visited approximately once a year when a discharge measurement is taken for historical records.

PROGRAM INTEGRATION: The Pennsylvania Streamflow Gaging Network is a subset of a national program coordinated by the U.S. Geological Survey.

PENNSYLVANIA STREAMFLOW GAGING STATIONS

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
01516350	41 47 34	77 04 44	AFL	SUSQUEHANNA	TIOGA	2050104	TIOGA RIVER NEAR MANSFIELD, PA
01516500	41 47 27	77 00 54	AFL	SUSQUEHANNA	TIOGA	2050104	COREY CREEK NEAR MAINESBURG, PA
01518000	41 54 30	77 07 47	AFL	SUSQUEHANNA	TIOGA	2050104	TIOGA RIVER AT TIOGA, PA
01518700	41 57 09	77 06 56	AFL	SUSQUEHANNA	TIOGA	2050104	TIOGA RIVER AT TIOGA JUNCTION,
01518862	41 55 23	77 31 56	AFL	SUSQUEHANNA	TIOGA	2050104	COWANESQUE RIVER AT WESTFIELD,
01520000	41 59 48	77 08 25	AFL	SUSQUEHANNA	TIOGA	2050104	COWANESQUE RIVER NEAR LAWRENCEV
01531500	41 45 55	76 26 28	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-TUNKHANNOCK	2050106	SUSQUEHANNA RIVER AT TOWANDA, P
01532000	41 42 25	76 29 06	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-TUNKHANNOCK	2050106	TOWANDA CREEK NEAR MONROETON, P
01533400	41 36 26	76 03 02	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-TUNKHANNOCK	2050106	SUSQUEHANNA RIVER AT MESHOPPEN,
01534000	41 33 29	75 53 42	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-TUNKHANNOCK	2050106	TUNKHANNOCK CREEK NEAR TUNKHANN
01534300	41 40 47	75 28 20	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-LACKAWANNA	2050107	LACKAWANNA RIVER NEAR FOREST CI
01534500	41 30 16	75 32 33	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-LACKAWANNA	2050107	LACKAWANNA RIVER AT ARCHBALD, P
01536000	41 21 33	75 44 41	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-LACKAWANNA	2050107	LACKAWANNA RIVER AT OLD FORGE,
01536500	41 15 03	75 52 52	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-LACKAWANNA	2050107	SUSQUEHANNA RIVER AT WILKES-BAR
01537000	41 16 57	75 53 46	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-LACKAWANNA	2050107	TOBY CREEK AT LUZERNE, PA
01537500	41 13 39	75 54 17	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-LACKAWANNA	2050107	SOLOMON CREEK AT WILKES-BARRE,
01538000	41 03 33	76 05 38	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-LACKAWANNA	2050107	WAPWALLOPEN CREEK NEAR WAPWALLO
01539000	41 04 41	76 25 53	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-LACKAWANNA	2050107	FISHING CREEK NEAR BLOOMSBURG,
01540500	40 57 29	76 37 10	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-LACKAWANNA	2050107	SUSQUEHANNA RIVER AT DANVILLE,
01541000	40 53 49	78 40 38	AFL	SUSQUEHANNA	UPPER WEST BRANCH SUSQUEHANNA	2050201	WEST BRANCH SUSQUEHANNA AT BOWE
01541200	40 57 41	78 31 10	AFL	SUSQUEHANNA	UPPER WEST BRANCH SUSQUEHANNA	2050201	WEST BRANCH SUSQUEHANNA AT CERW
01541303	41 00 16	78 27 25	AFL	SUSQUEHANNA	UPPER WEST BRANCH SUSQUEHANNA	2050201	WEST BRANCH SUSQUEHANNA AT HYDE
01541500	40 58 18	78 24 22	AFL	SUSQUEHANNA	UPPER WEST BRANCH SUSQUEHANNA	2050201	CLEARFIELD CREEK AT DIMELING, P
01542000	40 50 58	78 16 05	AFL	SUSQUEHANNA	UPPER WEST BRANCH SUSQUEHANNA	2050201	MOSHANNON CREEK AT OSCEOLA MILL
01542500	41 07 03	78 06 33	AFL	SUSQUEHANNA	UPPER WEST BRANCH SUSQUEHANNA	2050201	WEST BRANCH SUSQUEHANNA RIVER A
01542810	41 34 44	78 17 34	AFL	SUSQUEHANNA	SINNEMAHONING	2050202	WAIDY RUN NEAR EMPORIUM, PA
01543000	41 24 48	78 11 50	AFL	SUSQUEHANNA	SINNEMAHONING	2050202	DRIFTWOOD BRANCH SINNEMAHONG CR
01543500	41 19 02	78 06 12	AFL	SUSQUEHANNA	SINNEMAHONING	2050202	SINNEMAHONG CREEK AT SINNEMAHON
01544000	41 24 06	78 01 28	AFL	SUSQUEHANNA	SINNEMAHONING	2050202	FIRST FORK SINNEMAHONG CREEK NR
01544500	41 28 33	77 49 34	AFL	SUSQUEHANNA	MIDDLE WEST BRANCH SUSQUEHANNA	2050203	KETTLE CREEK AT CROSS FORK, PA
01545000	41 19 12	77 52 27	AFL	SUSQUEHANNA	MIDDLE WEST BRANCH SUSQUEHANNA	2050203	KETTLE CREEK NEAR WESTPORT, PA
01545500	41 19 28	77 45 03	AFL	SUSQUEHANNA	MIDDLE WEST BRANCH SUSQUEHANNA	2050203	WEST BRANCH SUSQUEHANNA RIVER A
01545600	41 23 22	77 41 28	AFL	SUSQUEHANNA	MIDDLE WEST BRANCH SUSQUEHANNA	2050203	YOUNG WOMAN'S CREEK NEAR RENOVO
01546400	40 50 01	77 49 40	AFL	SUSQUEHANNA	BALD EAGLE	2050204	SPRING CREEK AT HOUSERVILLE, PA
01546500	40 53 23	77 47 40	AFL	SUSQUEHANNA	BALD EAGLE	2050204	SPRING CREEK NEAR AXEMANN, PA
01547100	40 55 54	77 47 13	AFL	SUSQUEHANNA	BALD EAGLE	2050204	SPRING CREEK AT MILESBURG, PA
01547200	40 56 35	77 47 12	AFL	SUSQUEHANNA	BALD EAGLE	2050204	BALD EAGLE CR BELOW SPRING CR A
01547500	41 03 06	77 36 17	AFL	SUSQUEHANNA	BALD EAGLE	2050204	BALD EAGLE CREEK AT BLAREHARD,
01547700	41 03 34	77 36 22	AFL	SUSQUEHANNA	BALD EAGLE	2050204	MARSH CREEK AT BLAREHARD, PA
01547950	41 06 42	77 42 09	AFL	SUSQUEHANNA	BALD EAGLE	2050204	BEECH CREEK AT MONUMENT, PA
01548005	41 04 51	77 32 59	AFL	SUSQUEHANNA	BALD EAGLE	2050204	BALD EAGLE CREEK NR BEECH CREEK
01548500	41 31 18	77 26 52	AFL	SUSQUEHANNA	PINE	2050205	PINE CREEK AT CEDAR RUN, PA
01549500	41 28 25	77 13 52	AFL	SUSQUEHANNA	PINE	2050205	BLOCKHOUSE CREEK NEAR ENGLISH C
01549700	41 16 25	77 19 28	AFL	SUSQUEHANNA	PINE	2050205	PINE CREEK NEAR WATERVILLE, PA
01550000	41 25 06	77 01 59	AFL	SUSQUEHANNA	LOWER WEST BRANCH SUSQUEHANNA	2050206	LYCOMING CREEK NEAR TROUT RUN,
01551500	41 14 10	76 59 49	AFL	SUSQUEHANNA	LOWER WEST BRANCH SUSQUEHANNA	2050206	WEST BRANCH SUSQUEHANNA AT WILL
01552000	41 19 31	76 54 43	AFL	SUSQUEHANNA	LOWER WEST BRANCH SUSQUEHANNA	2050206	LOYALSOCK CREEK AT LOYALSOCKVIL
01552500	41 21 25	76 32 06	AFL	SUSQUEHANNA	LOWER WEST BRANCH SUSQUEHANNA	2050206	MUNCY CREEK NEAR SONESTOWN, PA
01553500	40 58 05	76 52 25	AFL	SUSQUEHANNA	LOWER WEST BRANCH SUSQUEHANNA	2050206	WEST BRANCH SUSQUEHANNA RIVER A
01553700	41 03 42	76 40 50	AFL	SUSQUEHANNA	LOWER WEST BRANCH SUSQUEHANNA	2050206	CHILLISQUAQUE CREEK AT WASHINGT
01554000	40 50 04	76 49 37	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA-PENNS	2050301	SUSQUEHANNA RIVER AT SUNBURY, P
01554500	40 48 37	76 35 04	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA-PENNS	2050301	SHAMOKIN CREEK NEAR SHAMOKIN, P
01555000	40 52 00	77 02 55	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA-PENNS	2050301	PENNS CREEK AT PENNS CREEK, PA
01555500	40 36 40	76 54 44	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA-PENNS	2050301	EAST MAHANTANGO CREEK NEAR DAIM
01556000	40 27 47	78 12 00	AFL	SUSQUEHANNA	UPPER JUNIATA	2050302	FRANKSTOWN BRANCH JUNIATA AT WI
01557500	40 41 01	78 14 02	AFL	SUSQUEHANNA	UPPER JUNIATA	2050302	BALD EAGLE CREEK AT TYRONE, PA
01558000	40 36 45	78 08 27	AFL	SUSQUEHANNA	UPPER JUNIATA	2050302	LITTLE JUNIATA RIVER AT SPRUCE
01559000	40 29 05	78 01 09	AFL	SUSQUEHANNA	UPPER JUNIATA	2050302	JUNIATA RIVER AT HUNTIINGTON, P
01560000	40 04 18	78 29 34	AFL	SUSQUEHANNA	RAYSTOWN	2050303	DUNNING CREEK AT BELDEN, PA
01562000	40 12 57	78 15 56	AFL	SUSQUEHANNA	RAYSTOWN	2050303	RAYSTOWN BRANCH JUNIATA AT SAXT
01563200	40 25 44	77 59 29	AFL	SUSQUEHANNA	RAYSTOWN	2050303	RAYSTOWN BRANCH JUNIATA NEAR HU
01563500	40 23 32	77 56 07	AFL	SUSQUEHANNA	LOWER JUNIATA	2050304	JUNIATA RIVER AT MAPLETON DEPOT
01564500	40 12 45	77 55 32	AFL	SUSQUEHANNA	LOWER JUNIATA	2050304	AUGHWICK CREEK NEAR THREE SPRIN
01567000	40 28 42	77 07 46	AFL	SUSQUEHANNA	LOWER JUNIATA	2050304	JUNIATA RIVER AT NEWPORT, PA
01567500	40 22 15	77 24 09	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA-SWATARA	2050305	BIXLER RUN NEAR LOYSVILLE, PA
01568000	40 19 24	77 10 09	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA-SWATARA	2050305	SHERMAN CREEK AT SHERMAN'S DALE
01568500	40 27 37	76 45 06	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA-SWATARA	2050305	CIARK CREEK NEAR CARSONVILLE, P
01569800	40 14 05	77 08 23	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA-SWATARA	2050305	LETORT SPRING RUN NEAR CARLISLE
01570000	40 15 08	77 01 17	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA-SWATARA	2050305	CONODOQUINET CREEK NEAR HOGESTO
01570500	40 15 17	76 53 11	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA-SWATARA	2050305	SUSQUEHANNA RIVER AT HARRISBURG
01571500	40 13 29	76 53 54	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA-SWATARA	2050305	YELLOW BREECHES CREEK NEAR CAMP
01572025	40 31 57	76 24 09	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA-SWATARA	2050305	SWATARA CREEK NR PINE CROVE, PA

01572190	40 28 45	76 31 52	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA-SWATARA	2050305	SWATARA CREEK NR INWOOD, PA
01573000	40 24 09	76 34 39	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA-SWATARA	2050305	SWATARA CREEK AT HARPER TAVERN,
01573160	40 20 34	76 33 46	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA-SWATARA	2050305	QUITTAPAHILLA CREEK NEAR BELLGR
01573560	40 17 54	76 40 05	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA-SWATARA	2050305	SWATARA CREEK NEAR HERSHEY, PA
01574000	40 04 56	76 43 13	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	WEST CONEWAGO CREEK NEAR MANCHE
01574500	39 52 43	76 51 13	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	CODORUS CREEK AT SPRING GROVE,
01575000	39 55 14	76 44 57	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	SOUTH BRANCH CODORUS CREEK NEAR
01575500	39 56 46	76 45 20	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	CODORUS CREEK NEAR YORK, PA
01575585	40 01 07	76 41 36	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	CODORUS CREEK AT PLEASUREVILLE,
01576000	40 03 16	76 31 52	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	SUSQUEHANNA RIVER AT MARIETTA,
0157608335	40 08 47	75 55 37	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	LITTLE CONESTOGA CREEK NR MORGA
01576085	40 08 41	75 59 20	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	LITTLE CONESTOGA CREEK NEAR CHU
01576500	40 03 00	76 16 39	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	CONESTOGA RIVER AT LANCASTER, P
01576697	40 04 19	76 21 26	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	SWARR RUN NR LANDISVILLE, PA
01576754	39 56 47	76 22 05	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	CONESTOGA RIVER AT CONESTOGA, P
01613050	39 53 54	78 07 57	AFL	POTOMAC	CONOCOCHEAGUE-OPEQUON	2070004	TONOLOWAY CREEK NEAR NEEDMORE,

PENNSYLVANIA STREAMFLOW CREST-STAGE PARTIAL-RECORD STATIONS

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
01518400	41 50 33	77 16 36	AFL	SUSQUEHANNA	TIOGA	2050104	CROOKED CREEK AT MIDDLEBURY CEN
01519200	41 59 15	77 18 09	AFL	SUSQUEHANNA	TIOGA	2050104	COWANESUE RIVER AT ELKLAND, PA
01532200	41 35 23	76 25 58	AFL	SUSQUEHANNA	LOWER WEST BRANCH SUSQUEHANNA	2050206	SOUTH BRANCH TOWANDA CREEK AT N
01533250	41 42 25	76 07 10	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-TUNKHANNOCK	2050106	TUSCARORA CREEK NEAR SILVARA, P
01542720	41 12 58	78 35 00	AFL	SUSQUEHANNA	SINNEMAHONING	2050202	WILSON RUN AT PENFIELD, PA
01543700	41 31 08	78 01 40	AFL	SUSQUEHANNA	SINNEMAHONING	2050202	FIRST FORK SINNEMAHONING CREEK
01545800	41 08 17	77 26 32	AFL	SUSQUEHANNA	MIDDLE WEST BRANCH SUSQUEHANNA	2050203	WEST BRANCH SUSQUEHANNA RIVER A
01553050	41 07 08	77 04 02	AFL	SUSQUEHANNA	LOWER WEST BRANCH SUSQUEHANNA	2050206	WHITE DEER HOLE CREEK NEAR ELIM
01569340	40 07 40	77 32 50	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA-SWATARA	2050305	NEWBURG RUN AT NEWBURG, PA
01571000	40 18 30	76 51 00	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA-SWATARA	2050305	PAXTON CREEK NEAR PENBROOK, PA
01576320	40 12 44	76 07 30	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	STONY RUN AT REAMSTOWN, PA
01578200	39 50 35	76 11 45	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	CONOWINGO CREEK NEAR BUCK, PA
01539700	41 02 25	76 29 01	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-LACKAWANNA	2050107	LITTLE FISHING CREEK NEAR BLOOM
01559790	40 02 45	78 31 45	AFL	SUSQUEHANNA	RAYSTOWN	2050303	RAYSTOWN BRANCH JUNIATA RIVER A
01564512	40 16 55	77 53 27	AFL	SUSQUEHANNA	LOWER JUNIATA	2050304	AUGHWICK CREEK NEAR SHIRLEYSBUR
01564895	40 35 40	77 34 58	AFL	SUSQUEHANNA	LOWER JUNIATA	2050304	JUNIATA RIVER AT LEWISTOWN
01565000	40 39 17	77 35 00	AFL	SUSQUEHANNA	LOWER JUNIATA	2050304	KISHACOQUILLAS CREEK AT REEDSVI

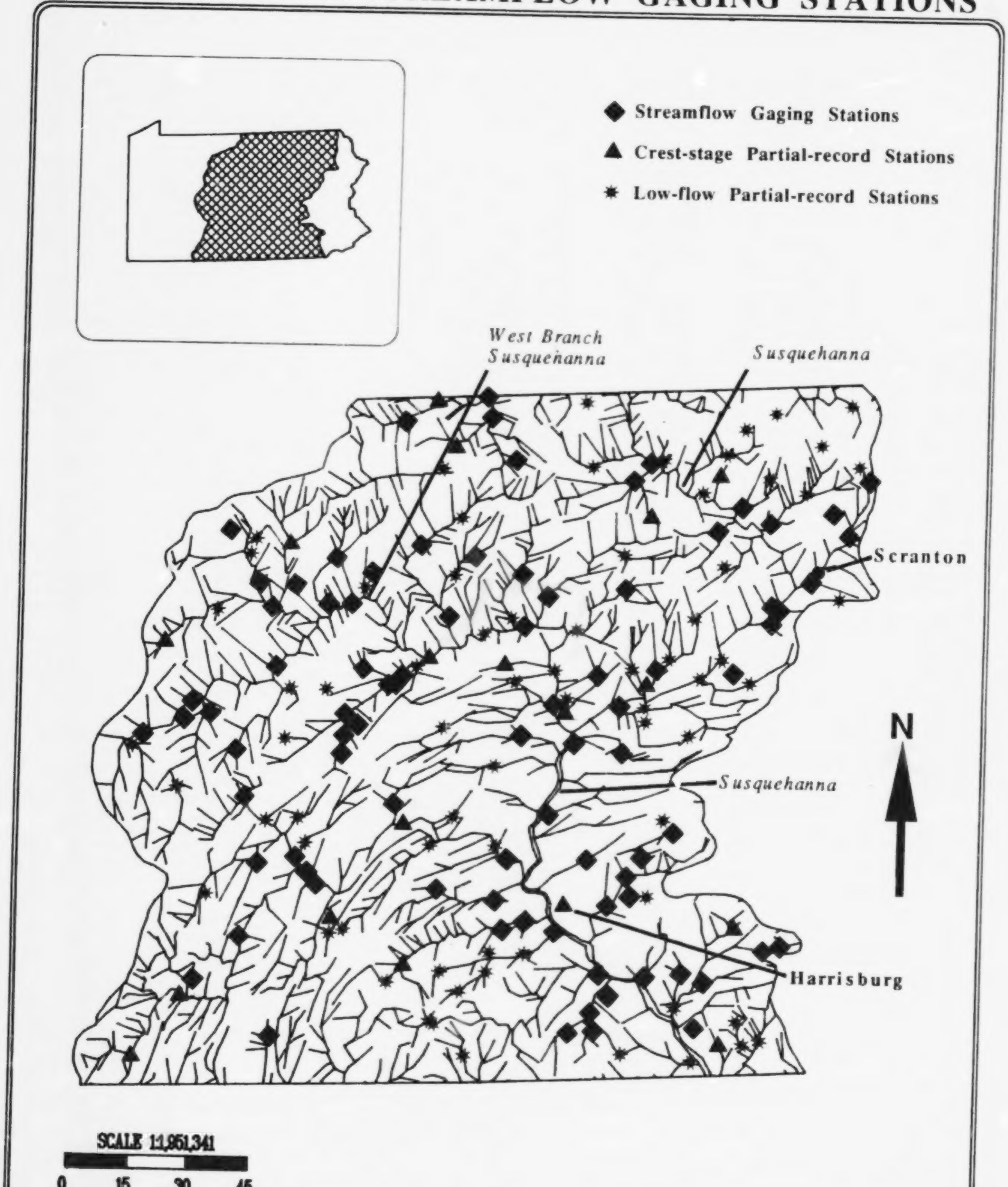
PENNSYLVANIA STREAMFLOW LOW-FLOW PARTIAL-RECORD STATIONS

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
01502750	41 55 50	75 30 15	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA	2050101	STARRUCA CREEK NEAR MELROSE, PA
01502780	41 55 00	75 50 45	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA	2050101	SNAKE CREEK NEAR MONTROSE, PA
01532800	41 47 15	76 04 15	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-TUNKHANNOCK	2050106	EAST BRANCK WYALUSING CREEK AT
01532850	41 51 45	76 00 26	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-TUNKHANNOCK	2050106	MIDDLE BRANCHWYALUSING CREEK TR
01533300	41 41 50	75 53 10	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-TUNKHANNOCK	2050106	MESHOPPEN CREEK NEAR SPRINGVILL
01533800	41 48 10	75 38 40	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-TUNKHANNOCK	2050106	BUTLER CREEK AT GIBSON, PA
01533840	41 39 03	75 43 15	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-TUNKHANNOCK	2050106	TUNKHANNOCK CREEK AT GLENWOOD,
01533950	41 34 29	75 38 32	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-TUNKHANNOCK	2050106	SOUTH BRANCH TUNKHANNOCK CREEK
01534050	41 24 55	76 05 30	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-TUNKHANNOCK	2050106	BOWMAN CREEK NEAR NOXEN, PA
01534170	41 43 08	75 28 49	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-TUNKHANNOCK	2050107	EAST BRANCH LACKAWANNA RIVER AT
01535540	41 17 07	75 35 33	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-LACKAWANNA	2050107	SPRING BROOK NEAR SPRING BROOK,
01537900	41 05 43	76 07 18	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-LACKAWANNA	2050107	LITTLE WAPWALLOPEN CREEK NEAR W
01538500	41 01 15	76 00 40	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-LACKAWANNA	2050107	NESCOPECK CREEK NEAR ST. JOHNS,
01538600	41 02 16	76 13 28	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-LACKAWANNA	2050107	NESCOPECK CREEK AT NESSSCOPECK,
01538900	41 14 25	76 14 10	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-LACKAWANNA	2050107	HUNTINGTON CREEK NEAR HARVEYVIL
01538970	41 06 27	76 21 44	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-LACKAWANNA	2050107	FISHING CREEK AT FORKS. PA
01539500	41 04 50	76 30 40	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-LACKAWANNA	2050107	LITTLE FISHING CREEK AT EYERS G
01540200	40 51 10	76 16 48	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-LACKAWANNA	2050107	TREXLER RUN NEAR RINGTON, PA
01540350	40 57 00	76 27 56	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-LACKAWANNA	2050107	CATAWISSA CREEK AT CATAWISSA, P
01540410	40 54 15	76 28 02	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-LACKAWANNA	2050107	ROARING CREEK NEAR CATAWISSA, P
01541325	40 43 05	78 31 38	AFL	SUSQUEHANNA	UPPER WEST BRANCH SUSQUEHANNA	2050201	CLEARFIELD CREEK AT FLINTON, PA
01554800	40 54 00	77 21 25	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA-PENNS	2050301	PINE CREEK AT WOODWARD, PA
01555200	40 46 40	77 07 55	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA-PENNS	2050301	MIDDLE CREEK AT BEAVERSTOWN, PA

PENNSYLVANIA STREAMFLOW LOW-FLOW PARTIAL-RECORD STATIONS (Cont'd)

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
01555780	40 21 23	78 25 41	AFL	SUSQUEHANNA	UPPER JUNIATA	2050302	FRANKSTOWN BRANCH JUNIATA R AT
01558100	40 36 55	78 07 55	AFL	SUSQUEHANNA	UPPER JUNIATA	2050302	SPRUCE CREEK AT SPRUCE CREEK, P
01558500	40 36 40	78 00 25	AFL	SUSQUEHANNA	UPPER JUNIATA	2050302	SHAVER CREEK AT PETERSBURG, PA
01559500	40 31 25	77 58 15	AFL	SUSQUEHANNA	UPPER JUNIATA	2050302	STANDING STONE CREEK NEAR HUNTI
01564550	40 13 55	77 52 25	AFL	SUSQUEHANNA	LOWER JUNIATA	2050304	BLACKLOG CREEK NEAR ORBISONIA,
01565700	40 36 19	77 18 42	AFL	SUSQUEHANNA	LOWER JUNIATA	2050304	LITTLE LOST CREEK NEAR OAKLAND
01566000	40 30 55	77 25 10	AFL	SUSQUEHANNA	LOWER JUNIATA	2050304	TUSCARORA CREEK NEAR PORT ROYAL
01566900	40 29 37	77 08 20	AFL	SUSQUEHANNA	LOWER JUNIATA	2050304	BUFFALO CREEK NEAR NEWPORT, PA
01569300	40 03 40	77 37 00	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA-SWATARA	2050305	CONODOGUIN CREEK AT ORRSTOWN,
01571110	40 05 47	77 23 34	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA-SWATARA	2050305	YELLOW BREECHES CREEK NEAR WALN
01571185	40 01 51	77 18 18	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA-SWATARA	2050305	MOUNTAIN CREEK AT PINE GROVE FU
01571190	40 05 36	77 11 14	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA-SWATARA	2050305	MOUNTAIN CREEK NEAR HOLLY SRPIN
01571200	40 08 45	77 10 15	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA-SWATARA	2050305	YELLOW BREECHES CREEK AT CRAIGH
01571300	40 08 50	77 01 50	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA-SWATARA	2050305	DOGWOOD RUN NEAR DILLSBURG, PA
01571500	40 13 29	76 53 54	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA-SWATARA	2050305	YELLOW BREECHES CREEK NEAR CAMP
01571824	40 34 30	76 24 10	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA-SWATARA	2050305	SWATARA CREEK AT RAVINE, PA
01573086	40 19 24	76 29 00	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA-SWATARA	2050305	BECK CREEK NEAR CLEONA, PA
01574800	39 48 57	76 37 59	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	EAST BRANCH CODORUS CR. TRIB NR
01576750	39 57 20	76 22 16	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	LITTLE CONOSTOGA CREEK NEAR ROC
01576754	39 56 47	76 22 05	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	CONESTOGA RIVER AT CONESTOGA, P
01577500	39 46 21	76 18 58	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	MUDDY CREEK AT CASTLE FIN, PA
01578360	39 49 50	76 01 05	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	EAST BRANCH OCTORARO CREEK NEAR
01578400	39 53 41	76 06 50	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	BOWERY RUN NEAR QUARRYVILLE, PA
01578440	39 49 29	76 05 25	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	WEST BRANCH OCTORARO CREEK AT W
01614090	39 55 48	77 26 23	AFL	POTOMAC	CONOCOCHEAGUE-OPEQUON	2070004	CONOCOCHEAQUE CREEK NEAR FAYETT
01614100	39 55 46	77 26 28	AFL	POTOMAC	CONOCOCHEAGUE-OPEQUON	2070004	BIRCH RUN NEAR FAYETTEVILLE, PA
01638800	39 49 05	77 17 05	AFL	POTOMAC	MONOCACY	2070009	MARSH CREEK NEAR GETTYSBURG, PA
01516300	41 44 42	77 04 49	AFL	SUSQUEHANNA	TIOGA	2050104	TIOGA RIVER AT COVINGTON, PA
01519500	41 58 25	77 14 35	AFL	SUSQUEHANNA	TIOGA	2050104	COWANESQUE RIVER AT NELSON, PA
01530850	41 58 25	76 43 12	AFL	SUSQUEHANNA	CHEMUNG	2050105	BENTLEY CREEK AT RIDGEBURY, PA
01531300	41 45 45	76 41 55	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-TUNKHANNOCK	2050106	SUGAR CREEK NEAR W. BURLINGTON,
01531900	41 39 20	76 49 50	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-TUNKHANNOCK	2050106	TOWANDA CREEK AT CANTON, PA
01532600	41 47 10	76 23 00	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-TUNKHANNOCK	2050106	WYSOX CREEK NEAR WYSOX, PA
01533500	41 31 50	76 09 20	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-TUNKHANNOCK	2050106	N. BRANCH MEHOOPANY CREEK NR LO
01540820	40 52 06	78 43 15	AFL	SUSQUEHANNA	UPPER WEST BRANCH SUSQUEHANNA	2050201	CHEST CREEK NEAR MAFAFFEY, PA
01541250	40 58 20	78 31 20	AFL	SUSQUEHANNA	UPPER WEST BRANCH SUSQUEHANNA	2050201	ANDERSON CREEK AT CURWENSVILLE,
01542310	41 02 12	78 03 28	AFL	SUSQUEHANNA	UPPER WEST BRANCH SUSQUEHANNA	2050201	MOSHANNON CREEK NEAR MOSHANNON,
01542330	40 52 43	78 04 36	AFL	SUSQUEHANNA	UPPER WEST BRANCH SUSQUEHANNA	2050201	BLACK MOSHANNON CREEK NEAR PHIL
01542760	41 18 50	78 23 05	AFL	SUSQUEHANNA	SINNEMAHONING	2050202	TROUT RUN AT BENEZETT, PA
01542880	41 30 29	78 14 15	AFL	SUSQUEHANNA	SINNEMAHONING	2050202	DRIFTWOOD BRANCH SINNIMAHONING
01542950	41 32 36	78 12 43	AFL	SUSQUEHANNA	SINNEMAHONING	2050202	SINNEMAHONING PORT CR NR EMPORI
01545610	41 22 19	77 42 01	AFL	SUSQUEHANNA	MIDDLE WEST BRANCH SUSQUEHANNA	2050203	LEFT BRANCH YOUNG WOMANS CR NEA
01545680	41 10 32	77 32 53	AFL	SUSQUEHANNA	MIDDLE WEST BRANCH SUSQUEHANNA	2050203	TANGASCOOTACK CREEK NEAR LOCK H
01547800	41 01 30	77 54 15	AFL	SUSQUEHANNA	BALD EAGLE	2050204	SOUTH FORK BEECH CREEK NEAR SNO
01548080	41 06 35	77 29 10	AFL	SUSQUEHANNA	BALD EAGLE	2050204	FISHING CREEK AT MILL HALL, PA
01548300	41 46 25	77 21 15	AFL	SUSQUEHANNA	PINE	2050205	MARSH CREEK NEAR MARSH CREEK, P
01548400	41 35 50	77 17 23	AFL	SUSQUEHANNA	PINE	2050205	BABB CREEK AT MORRIS, PA
01549550	41 24 46	77 19 19	AFL	SUSQUEHANNA	PINE	2050205	LITTLE PINE CREEK NR ENGLISH CE
01549790	41 13 10	77 13 12	AFL	SUSQUEHANNA	LOWER WEST BRANCH SUSQUEHANNA	2050206	LARRY CREEK AT LARRYS CREEK, PA
01550500	41 16 10	77 03 05	AFL	SUSQUEHANNA	LOWER WEST BRANCH SUSQUEHANNA	2050206	LYCOMING CREEK NEAR WILLIAMSPOR
01551830	41 28 10	76 35 05	AFL	SUSQUEHANNA	LOWER WEST BRANCH SUSQUEHANNA	2050206	LOYALSOCK CREEK NEAR FORKSVILLE
01553010	41 13 15	76 47 10	AFL	SUSQUEHANNA	LOWER WEST BRANCH SUSQUEHANNA	2050206	MUNCY CREEK NEAR MUNCY, PA
01553110	41 06 14	76 53 54	AFL	SUSQUEHANNA	LOWER WEST BRANCH SUSQUEHANNA	2050206	WHITE DEER HOLE CREEK AT ALLENW
01553130	41 03 31	77 04 37	AFL	SUSQUEHANNA	LOWER WEST BRANCH SUSQUEHANNA	2050206	SAND SPRING RUN NEAR WHITE DEER
01553480	40 58 19	76 53 30	AFL	SUSQUEHANNA	LOWER WEST BRANCH SUSQUEHANNA	2050206	BUFFALO CREEK AT LEWISBURG, PA

PENNSYLVANIA STREAMFLOW GAGING STATIONS


◆ Streamflow Gaging Stations
▲ Crest-stage Partial-record Stations
✱ Low-flow Partial-record Stations
West Branch Susquehanna
Susquehanna
Scranton
N
Susquehanna
Harrisburg
SCALE 1:1,951,341
0
15
30
45
MILES

USGS STREAMFLOW GAGING STATION NETWORK IN MARYLAND

PROGRAM DESCRIPTION: The USGS Streamflow Gaging Station Network in Maryland consists of 66 streamflow gaging stations within the Chesapeake Bay basin. The data collected from this long-term streamflow gaging network represent part of the information gathered through the National Water Data System conducted by the USGS and cooperating State and Federal agencies in Maryland.

PROGRAM OBJECTIVES: To provide basic information for hydrologic appraisals, environmental impact assessments and energy related studies.

DATE INITIATED: 1895 - 1984 (depending on station)

COORDINATING AGENCY:

U.S. Geological Survey
Mid-Atlantic District
Water Resources Division
208 Carroll Building
8600 LaSalle Road
Towson, Maryland 21204

FUNDING AGENCIES:

Baltimore City
Baltimore County
District of Columbia Department of Consumer and Regulatory Affairs
Maryland Geological Survey
Maryland Water Resources Administration
Upper Potomac River Basin Commission
U.S. Army Corps of Engineers
Washington Suburban Sanitation Commission

PARTICIPATING AGENCIES:

U.S. Geological Survey-Towson (USGS-Towson)
Maryland Department of the Environment (MDE)
Maryland Geological Survey (MGS)

INVESTIGATORS:

Principal Investigator	Robert W. James, Jr.	USGS-Towson

PARAMETERS:

Average Discharge
Extremes for Period of Record
Extremes Outside Period of Record
Extremes for Current Year
Mean Daily Average

STATIONS: There are 66 stations located within the Maryland portion of the Chesapeake Bay basin.

SAMPLE COLLECTION: Data obtained at a complete-record gaging station consist of a continuous record of stage, individual measurements of discharge throughout a range of stages, and notations regarding factors that may affect the relationship between stage and discharge. These data, together with supplemental information such as weather records, are used to compute daily discharges.

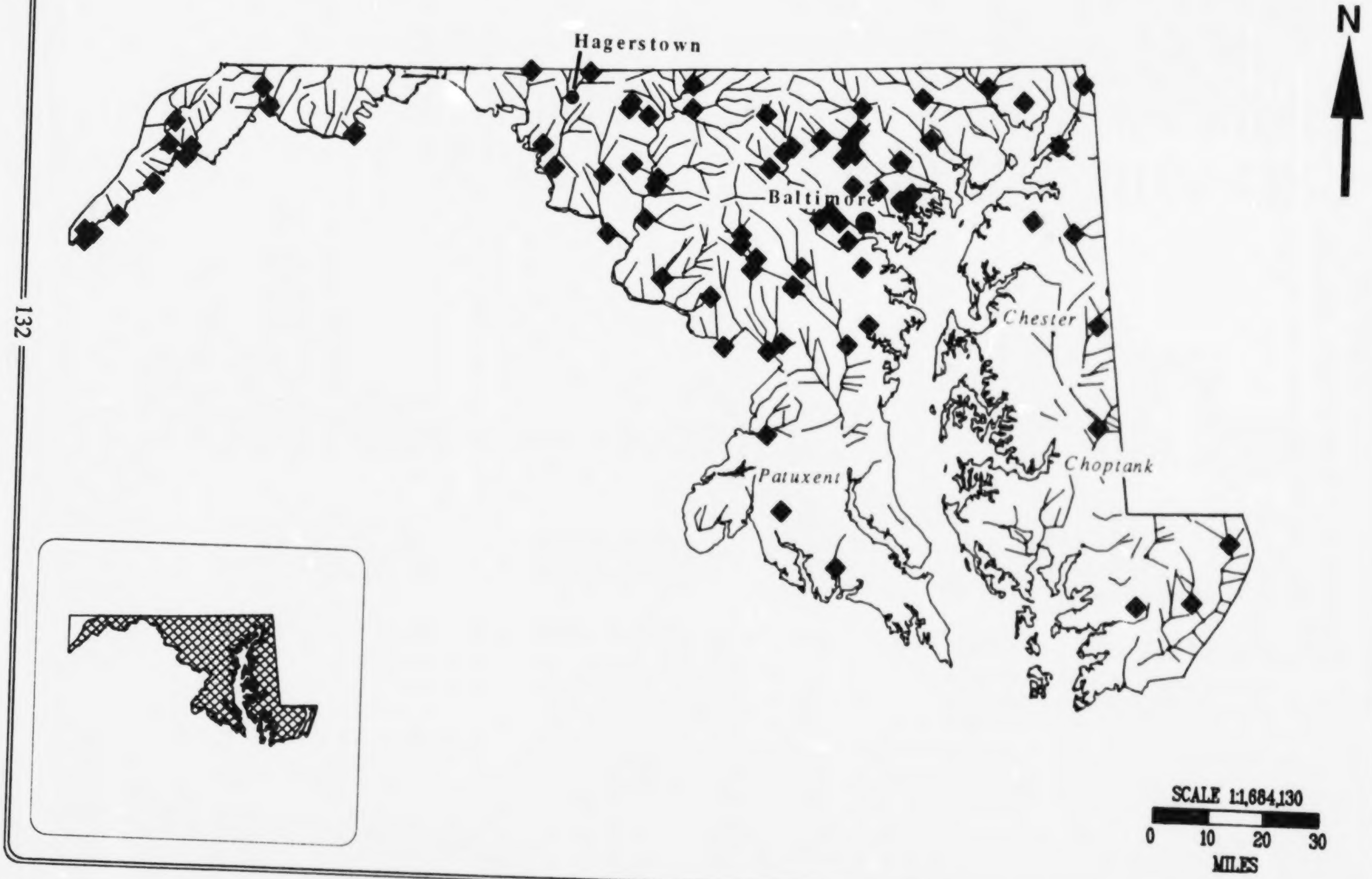
Continuous records of stage are obtained with analog recorders that trace continuous graphs of stage or with digital recorders that punch stage values onto paper tapes at selected time intervals. Measurements of discharge are made with current meters using methods adopted by the U.S. Geological Survey. Stations are visited every 6-8 weeks to ensure that all equipment is working properly.

PROGRAM INTEGRATION: The Maryland Streamflow Gaging Network is a subset of a national program coordinated by the U.S. Geological Survey. Although all of these stations are located in Maryland, streamflow gaging stations on the Delmarva Peninsula are operated by the Dover, Delaware Office of the Mid-Atlantic District.

MARYLAND STREAMFLOW GAGING STATIONS

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
01485000	38 23 20	75 19 30	BFL	EASTERN SHORE	POCOMOKE	2060009	POCOMOKE R. NEAR WILLARDS, MD
01485500	38 13 44	75 28 19	BFL	EASTERN SHORE	POCOMOKE	2060009	NASSAWARGO CR. NEAR SNOW HILL,
01486000	38 12 50	75 40 18	BFL	EASTERN SHORE	POCOMOKE	2060009	MANOKIN BRANCH NEAR PRINCESS AN
01489000	38 42 44	75 47 34	BFL	EASTERN SHORE	NANTICOKE	2060008	FAULKNER BRANCH AT FEDERALSBURG
01491000	38 59 50	75 47 09	BFL	EASTERN SHORE	CHOPTANK	2060005	CHOPTANK R. NEAR GREENSBORO, MD
01493000	39 14 59	75 51 40	BFL	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	UNICORN BRANCH NEAR MILLINGTON,
01493500	39 16 48	76 00 54	BFL	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	MORGAN CR. NEAR KENNEDYVILLE, M
01495000	39 39 26	75 49 20	AFL	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	BIG ELK CR. AT ELK MILLS, MD
01496200	39 37 34	76 02 27	AFL	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	PRINCIPIO CREEK NEAR PRINCIPIO
01578310	39 39 31	76 10 28	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	SUSQUEHANNA R. AT CONOWINGO DAM
01580000	39 37 49	76 24 13	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	DEER CR. AT ROCKS, MD
01581700	39 31 12	76 22 24	AFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	WINTERS RUN NR. BERSON, MD
01582000	39 36 16	76 37 16	AFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	LITTLE FALLS AT BLUE MOUNT, MD
01582500	39 32 59	76 38 11	AFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	GUNPOWDER FALLS AT GLENCOE, MD
01583500	39 30 38	76 40 37	AFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	WESTERN RUN AT WESTERN RUN, MD
01583600	39 29 13	76 38 42	AFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	BEAVERDAM RUN AT COCKEYSVILLE,
01584050	39 27 17	76 28 45	AFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	LONG GREEN CR. AT GLEN ANN, MD
01585100	39 22 15	76 26 46	BFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	WHITE MARSH RUN AT WHITE MARSH,
01585300	39 20 28	76 29 17	BFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	STEMMERS RUN AT ROSSVILLE, MD
01585500	39 35 35	76 58 05	AFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	CRANBERRY BRANCH NR. WESTMINSTE
01586000	39 30 00	76 53 00	AFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	NB PATAPSCO RIVER AT CEDARHURST
01586210	39 29 22	76 54 12	AFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	BEAVER RUN NEAR FINKSBURG, MD
01586610	39 27 07	76 57 20	AFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	MORGAN RUN NR. LOUISVILLE, MD
01589000	39 18 36	76 47 34	AFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	PATAPSCO RIVER AT HOLLOFIELD, M
01589100	39 14 24	76 41 33	BFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	EAST BRANCH HERBERT RUN AT ARBU
01589500	39 10 12	76 37 51	BFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	SAWMILL RUN AT GLEN BURNIE, MD
01590500	39 00 07	76 36 53	BFL	WEST CHESAPEAKE	SEVERN	2060004	BACON RIDGE BRANCH AT CHESTERFI
01591000	39 14 18	77 03 23	AFL	PATUXENT	PATUXENT	2060006	PATUXENT RIVER NEAR UNITY, MD
01591400	39 15 21	77 03 05	AFL	PATUXENT	PATUXENT	2060006	CATTAIL CREEK NEAR GLENWOOD, MD
01591610	39 11 31	77 00 16	AFL	PATUXENT	PATUXENT	2060006	PATUXENT RIVER BELOW NEAR BRIGH
01591700	39 10 29	77 01 22	AFL	PATUXENT	PATUXENT	2060006	HAWLINGS RIVER NEAR SANDY SPRIN
01592500	39 06 56	76 52 27	BFL	PATUXENT	PATUXENT	2060006	PATUXENT RIVER NEAR LAUREL, MD
01593500	39 10 04	76 51 07	AFL	PATUXENT	PATUXENT	2060006	LITTLE PATUXENT RIVER AT GUILFO
01594440	38 57 21	76 41 36	BFL	PATUXENT	PATUXENT	2060006	PATUXENT RIVER NEAR BOWIE, MD
01594930	39 14 37	79 25 43	AFL	POTOMAC	NORTH BRANCH POTOMAC	2070002	LAUREL RUN AT DOBBIN ROAD NEAR
01594936	39 15 36	79 24 36	AFL	POTOMAC	NORTH BRANCH POTOMAC	2070002	NF SAND RUN NEAR WILSON, MD
01595000	39 18 07	79 18 26	AFL	POTOMAC	NORTH BRANCH POTOMAC	2070002	NB POTOMAC RIVER AT STEYER, MD
01595500	39 23 38	79 10 55	AFL	POTOMAC	NORTH BRANCH POTOMAC	2070002	NB POTOMAC RIVER AT KITZMILLER,
01596500	39 34 05	79 06 10	AFL	POTOMAC	NORTH BRANCH POTOMAC	2070002	SAVAGE RIVER NR. BARTON, MD
01597500	39 30 05	79 07 25	AFL	POTOMAC	NORTH BRANCH POTOMAC	2070002	SAVAGE R. BELOW DAM NR. BLOOMIN
01598500	39 28 45	79 03 55	AFL	POTOMAC	NORTH BRANCH POTOMAC	2070002	NB POTOMAC RIVER AT LUKE, MD
01599000	39 29 38	79 02 42	AFL	POTOMAC	NORTH BRANCH POTOMAC	2070002	GEORGE CREEK AT FRANKLIN, MD
01601500	39 40 07	78 47 18	AFL	POTOMAC	NORTH BRANCH POTOMAC	2070002	WILLS CREEK NEAR CUMBERLAND, MD
01603000	39 37 16	78 46 24	AFL	POTOMAC	NORTH BRANCH POTOMAC	2070002	NB POTOMAC R NEAR CUMBERLAND, M
01610000	39 32 13	78 27 28	AFL	POTOMAC	CACAPON-TOWN	2070003	AT PAW PAW,WV
01613000	39 41 49	78 10 39	AFL	POTOMAC	CONOCOCHEAGUE-OPEQUON	2070004	POTOMAC RIVER AT HANCOCK, MD
01614500	39 42 57	77 49 28	AFL	POTOMAC	CONOCOCHEAGUE-OPEQUON	2070004	CONOCOCHEAGUE CREEK AT FAIRVIEW
01617800	39 30 53	77 46 38	AFL	POTOMAC	CONOCOCHEAGUE-OPEQUON	2070004	MARSH RUN AT GRIMES, MD
01619500	39 27 01	77 43 52	AFL	POTOMAC	CONOCOCHEAGUE-OPEQUON	2070004	ANTIETAM CREEK NR. SHARPSBURG,
01637500	39 25 35	77 33 25	AFL	POTOMAC	MIDDLE POTOMAC CATOCTIN	2070008	CATOCTIN CREEK NR. MIDDLETOWN,
01638500	39 16 25	77 32 35	AFL	POTOMAC	MIDDLE POTOMAC CATOCTIN	2070008	POTOMAC R. AT POINT OF ROCKS, M
01639000	39 40 43	77 14 06	AFL	POTOMAC	MONOCACY	2070009	MONOCACY R. AT BRIDGEPORT, MD
01639500	39 36 45	77 14 10	AFL	POTOMAC	MONOCACY	2070009	BIG PIPE CREEK AT BRUCEVILLE, M
01640965	39 37 10	77 28 00	AFL	POTOMAC	MONOCACY	2070009	HUNTING CREEK NEAR FOXVILLE, MD
01640970	39 37 42	77 27 44	AFL	POTOMAC	MONOCACY	2070009	HUNTING CREEK TRIBUTARY NR. FOX
01641000	39 35 40	77 23 50	AFL	POTOMAC	MONOCACY	2070009	HUNTING CREEK AT JIMTOWN, MD
01643000	39 24 13	77 21 58	AFL	POTOMAC	MONOCACY	2070009	MONOCACY R. AT JUG BRIDGE NR. F
01643020	39 23 16	77 22 40	AFL	POTOMAC	MONOCACY	2070009	MONOCACY R. AT RERCH'S FORD BRI
01643500	39 17 40	77 24 30	AFL	POTOMAC	MONOCACY	2070009	BENNETT CREEK AT PARK MILLS, MD
01645000	39 07 41	77 20 13	AFL	POTOMAC	MIDDLE POTOMAC CATOCTIN	2070008	SENECA CREEK AT DAWSONVILLE, MD
01646500	38 56 58	77 07 40	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	POTOMAC R. NEAR WASHINGTON, D.C
01649500	38 57 37	76 55 34	BFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	NE BRANCH ANACOSTIA R. AT RIVER
01651000	38 57 09	76 58 00	BFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	NE BRANCH ANACOSTIA R. NR. HYAT
01653600	38 42 20	76 58 00	BFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	PISCATAWAY CREEK AT PISCATAWAY,
01660920	38 29 26	76 55 37	BFL	POTOMAC	LOWER POTOMAC	2070011	ZEKIAH SWAMP RUN NEAR NEWTON, M
01661050	38 20 00	76 43 31	BFL	POTOMAC	LOWER POTOMAC	2070011	ST. CLEMENT CREEK NEAR CLEMENTS

MARYLAND STREAMFLOW GAGING STATIONS



USGS STREAMFLOW GAGING STATION NETWORK IN DELAWARE

PROGRAM DESCRIPTION: The USGS Streamflow Gaging Station Network consists of two streamflow gaging stations within Delaware's Chesapeake Bay basin. The data collected from this long-term streamflow gaging network represent part of the information gathered through the National Water Data System conducted by the USGS and cooperating State and Federal agencies.

PROGRAM OBJECTIVES: To provide basic information for hydrologic appraisals, environmental impact assessments and energy related studies.

DATE INITIATED: 1943

COORDINATING AGENCY:

U.S. Geological Survey
Mid-Atlantic Division
Water Resources Division
300 South New Street
Federal Building, Room 1201
Dover, Delaware 19901

FUNDING AGENCIES: U.S. Geological Survey

PARTICIPATING AGENCIES: U.S. Geological Survey-Dover (USGS-Dover)

INVESTIGATORS:

Principal Investigator	Robert H. Simmons	USGS-Dover

PARAMETERS:

- Average Discharge
- Extremes for Period of Record
- Extremes Outside Period of Record
- Extremes for Current Year
- Mean Daily Average

STATIONS: There are two stations located within Delaware's Chesapeake Bay basin.

SAMPLE COLLECTION: Data obtained at a complete-record gaging station consist of a continuous record of stage, individual measurements of discharge from a range of stages and notations of factors that may affect the relationships between stage and discharge. These data together with supplemental information such as weather records, are used to compute average daily discharges.

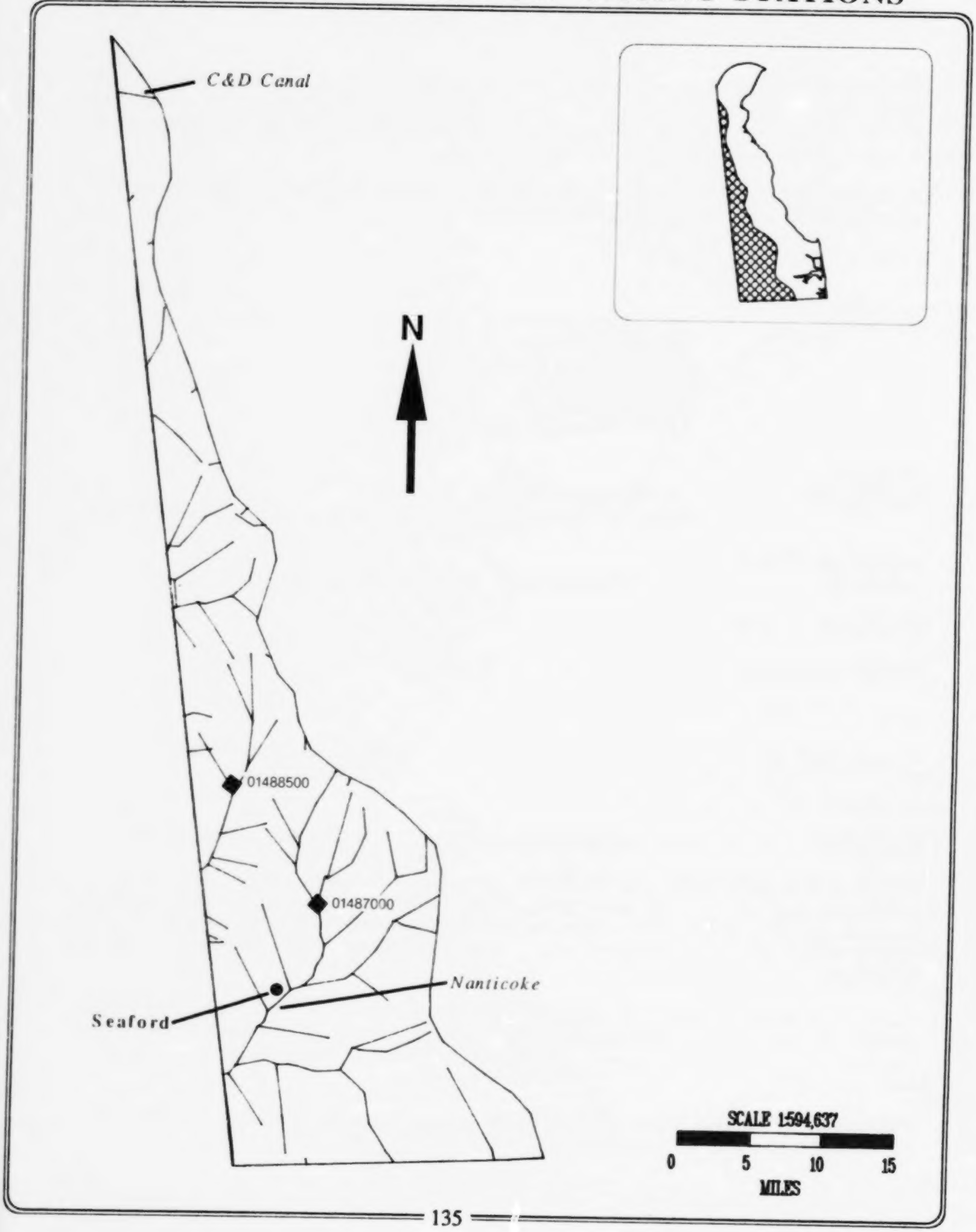
Records of stage are obtained using digital recorders and backed up with graphic analog recorders. Measurements of discharge are made with current meters using methods adopted by the U.S. Geological Survey. Stations are visited every five weeks to ensure that all equipment is working properly. At this time, partial-record stations are also visited and measurements taken.

PROGRAM INTEGRATION: The Delaware Streamflow Gaging Network is part of a national program coordinated by the U.S. Geological Survey.

DELAWARE STREAMFLOW GAGING STATIONS

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
01487000	38 43 42	75 33 44	BFL	EASTERN SHORE	NANTICOKE	2060008	2.5 MI. SE OF BRIDGEVILLE, DE
01488500	38 50 59	75 40 24	BFL	EASTERN SHORE	NANTICOKE	2060008	1.6 MI. NE OF ADAMSVILLE, DE

DELAWARE STREAMFLOW GAGING STATIONS



USGS STREAMFLOW GAGING STATION IN THE DISTRICT OF COLUMBIA

PROGRAM DESCRIPTION: The U.S. Geological Survey (USGS) maintains one streamflow gaging station in the District of Columbia. The data collected from this long-term streamflow gaging network represent part of the information gathered through the National Water Data System conducted by the USGS and cooperating State and Federal agencies.

PROGRAM OBJECTIVES: To provide basic information for hydrologic appraisals, environmental impact assessments and energy related studies.

DATE INITIATED: 1929

COORDINATING AGENCY:

U.S. Geological Survey
Mid-Atlantic District
Water Resources Division
208 Carroll Building
8600 LaSalle Road
Towson, Maryland 21204

FUNDING AGENCIES:

U.S. Geological Survey
District of Columbia Department of Consumer and Regulatory Affairs

PARTICIPATING AGENCY: U.S. Geological Survey-Towson (USGS-Towson)

INVESTIGATORS:

Principal Investigator	Robert W. James, Jr.	USGS-Towson

PARAMETERS:

Average Discharge
Extremes for Period of Record
Extremes Outside Period of Record
Extremes for Current Year
Mean Daily Average

STATIONS: One streamflow staging station is maintained on Rock Creek at Sherrill Drive.

SAMPLE COLLECTION: Data obtained at a complete-record gaging station consist of a continuous record of stage, individual measurements of discharge throughout a range of stages and notations regarding factors that may affect the relationship between stage and discharge. These data, together with supplemental information such as weather records, are used to compute average daily discharges.

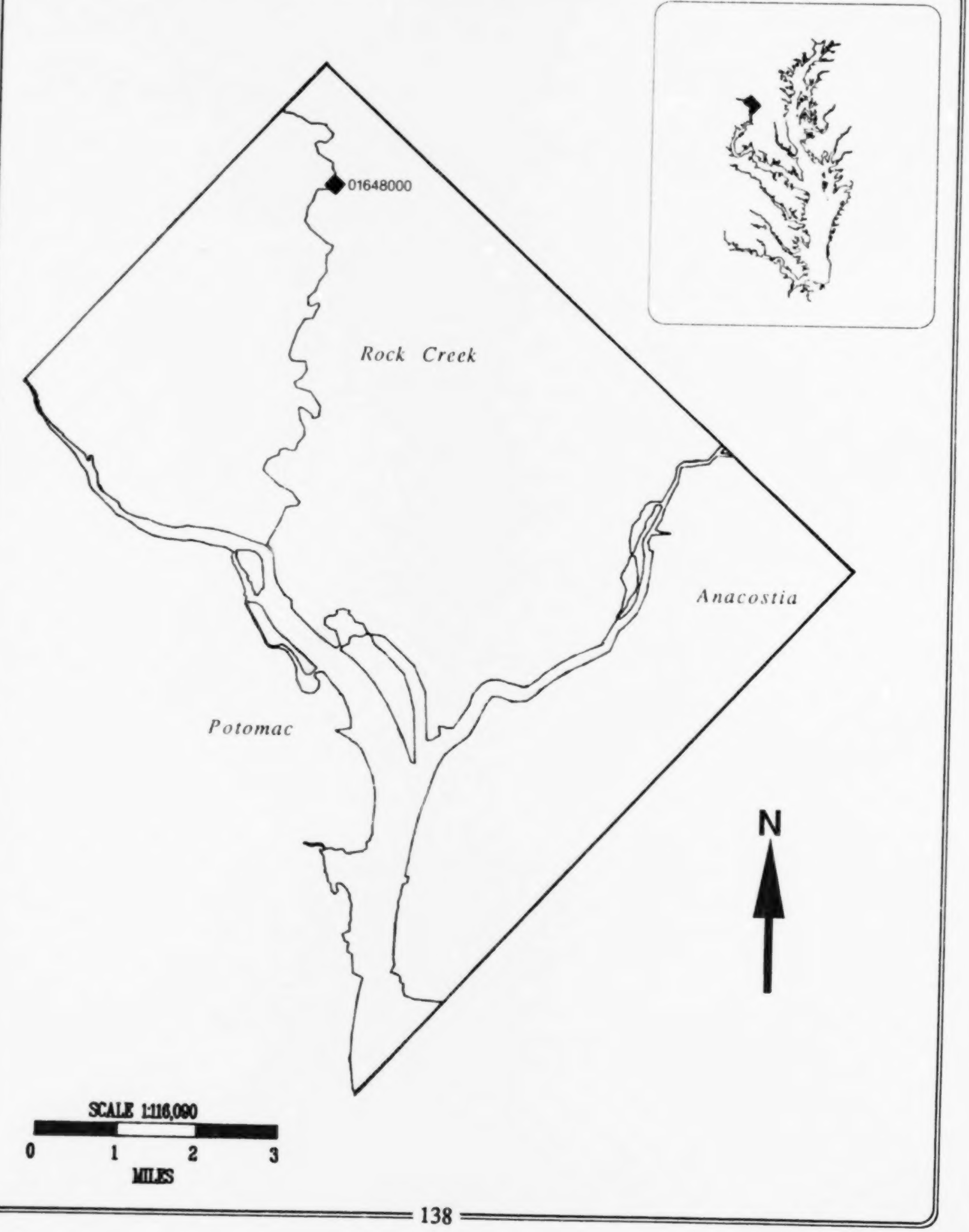
A continuous record of stage is obtained with both a digital recorder and a backup graphic analog recorder. Measurements of discharge are made with current meters using methods adopted by the U.S. Geological Survey. The station is visited every 6-8 weeks to ensure that all equipment is working properly.

PROGRAM INTEGRATION: This streamflow gaging station is part of a national program coordinated by the U.S. Geological Survey.

DISTRICT OF COLUMBIA STREAMFLOW GAGING STATIONS

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
01648000	38 58 21	77 02 25	AFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	ROCK CREEK AT SHERRILL DRIVE

DISTRICT OF COLUMBIA STREAMFLOW GAGING STATIONS



USGS STREAMFLOW GAGING STATION NETWORK IN VIRGINIA

PROGRAM DESCRIPTION: The Streamflow Gaging Station Network in Virginia, operated by the USGS and the Virginia Water Control Board, consists of 101 gaging stations within the Virginia portion of the Chesapeake Bay basin. The data collected from this long-term streamflow gaging network represent part of the information gathered through the National Water Data System conducted by the USGS and cooperating State and Federal agencies in Virginia. In addition, since desired streamflow information exceeds the number of streamflow gaging stations, USGS collects limited streamflow data at 47 crest-stage partial-record stations. Measurements of discharge are also made at various other stations.

PROGRAM OBJECTIVES: To provide basic information for hydrologic appraisals, environmental impact assessments and energy related studies.

DATE INITIATED: 1895 - 1985 (depending on station)

COORDINATING AGENCIES:

U.S. Geological Survey
Mid-Atlantic District
Water Resources Division
3600 West Broad Street, Room 606
Richmond, Virginia 23230

Virginia Water Control Board
1936 Arlington Blvd., Suite 210
Charlottesville, Virginia 22903

FUNDING AGENCIES:

U.S. Geological Survey
Virginia Water Control Board
Virginia Department of Transportation
City of Alexandria
City of Newport News
James City County
U.S. Army Corps of Engineers
Northern Virginia Planning District Commission
Virginia Power Company

PARTICIPATING AGENCIES:

U.S. Geological Survey-Richmond (USGS-Richmond)
Virginia Water Control Board (VWCB)

INVESTIGATORS:

Principal Investigator	Byron J. Prugh, Jr.	USGS-Richmond

PARAMETERS:

Average Discharge
Extremes for Period of Record
Extremes Outside Period of Record
Extremes for Current Year
Mean Daily Average

STATIONS: There are 101 stations located throughout the Virginia portion of the Chesapeake Bay basin. In addition to these, 47 partial-record stations are also monitored.

SAMPLE COLLECTION: Data obtained at a complete-record gaging station consist of a continuous record of stage, individual measurements of discharge throughout a range of stages and notations regarding factors that may affect the relationships between stage and discharge. These data, together with supplemental information, such as weather records, are used to compute daily average discharges.

All stations in Virginia are equipped with digital recorders to measure stage and current meters are used to measure discharge. Stations are visited every four to eight weeks (depending on site) to ensure that all equipment is working properly. At this time, partial-record stations are also visited and measurements taken.

PROGRAM INTEGRATION: The Virginia Streamflow Gaging Network is a subset of a national program coordinated by the U.S. Geological Survey.

VIRGINIA STREAMFLOW GAGING STATIONS

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
01484800	37 30 08	75 52 22	BFL	EASTERN SHORE	POCOMOKE	2060009	GUY CREEK NEAR NASSAWADOX, VA
01615000	39 10 40	78 04 20	AFL	POTOMAC	CONOCOCHEAGUE-OPEQUON	2070004	OPEQUON CREEK NEAR BERRYVILLE,
01616000	39 10 40	78 05 10	AFL	POTOMAC	CONOCOCHEAGUE-OPEQUON	2070004	ABRAMS CREEK NEAR WINCHESTER, V
01620500	38 20 15	79 14 25	AFL	POTOMAC	SOUTH FORK SHENANDOAH	2070005	NORTH RIVER NEAR STOKESVILLE, V
01622000	38 20 25	78 54 50	AFL	POTOMAC	SOUTH FORK SHENANDOAH	2070005	NORTH RIVER NEAR BURKETOWN, VA
01624300	38 14 36	79 02 08	AFL	POTOMAC	SOUTH FORK SHENANDOAH	2070005	MIDDLE RIVER NEAR VERONA, VA
01624800	38 07 42	78 59 41	AFL	POTOMAC	SOUTH FORK SHENANDOAH	2070005	CHRISTIANS CREEK NEAR FISHERSVI
01625000	38 15 42	78 51 44	AFL	POTOMAC	SOUTH FORK SHENANDOAH	2070005	MIDDLE RIVER NEAR GROTTOES.VA
01626000	38 03 27	78 54 30	AFL	POTOMAC	SOUTH FORK SHENANDOAH	2070005	SOUTH RIVER NEAR WAYNESBORO, VA
01626850	38 05 19	78 52 38	AFL	POTOMAC	SOUTH FORK SHENANDOAH	2070005	SOUTH RIVER NEAR DOOMS, VA
01627500	38 13 07	78 50 13	AFL	POTOMAC	SOUTH FORK SHENANDOAH	2070005	SOUTH RIVER NEAR HARRISTON, VA
01628060	38 15 01	78 44 57	AFL	POTOMAC	SOUTH FORK SHENANDOAH	2070005	WHITE OAK RUN NEAR GROTTOES, VA
01628500	38 19 21	78 45 18	AFL	POTOMAC	SOUTH FORK SHENANDOAH	2070005	SOUTH FORK SHENANDOAH NEAR LYNN
01629500	38 38 46	78 32 06	AFL	POTOMAC	SOUTH FORK SHENANDOAH	2070005	SOUTH FORK SHENANDOAH NEAR LURA
01631000	38 41 50	78 12 40	AFL	RAPPAHANNOCK	RAPIDAN-UPPER RAPPAHANNOCK	2080103	SOUTH FORK SHENANDOAH NEAR FRON
01632000	38 38 13	78 51 11	AFL	POTOMAC	NORTH FORK SHENANDOAH	2070006	NORTH FORK SHENANDOAH AT COOTES
01632082	38 36 24	78 48 13	AFL	POTOMAC	NORTH FORK SHENANDOAH	2070006	LINVILLE CREEK AT BROADWAY, VA
01632900	38 41 36	78 38 35	AFL	POTOMAC	NORTH FORK SHENANDOAH	2070006	SMITH CREEK NEAR NEW MARKET, VA
01633000	38 44 43	78 38 21	AFL	POTOMAC	NORTH FORK SHENANDOAH	2070006	NORTHFORK SHENANDOAH AT MT. JAC
01634000	38 58 36	78 20 11	AFL	POTOMAC	NORTH FORK SHENANDOAH	2070006	NORTHFORK SHENANDOAH NEAR STRAS
01634500	39 04 52	78 19 47	AFL	POTOMAC	NORTH FORK SHENANDOAH	2070006	CEDAR CREEK NEAR WINCHESTER, VA
01635500	38 57 29	78 16 01	AFL	POTOMAC	NORTH FORK SHENANDOAH	2070006	PASSAGE CREEK NEAR BUCKTON, VA
01638480	39 15 18	77 34 36	AFL	POTOMAC	MIDDLE POTOMAC CATOCTIN	2070008	CATOCTIN CREEK AT TAYLORSTOWN,
01638500	39 16 25	77 32 35	AFL	POTOMAC	MIDDLE POTOMAC CATOCTIN	2070008	POTOMAC RIVER NEAR POINT OF ROC
01643700	38 59 11	77 47 49	AFL	POTOMAC	MIDDLE POTOMAC CATOCTIN	2070008	GOOSE CREEK NEAR MIDDLEBURG, VA
01644000	39 01 10	77 34 40	AFL	POTOMAC	MIDDLE POTOMAC CATOCTIN	2070008	GOOSE CREEK NEAR LEESBURG, VA
01646000	38 58 33	77 14 46	AFL	POTOMAC	MIDDLE POTOMAC CATOCTIN	2070008	DIFFICULT RUN NEAR GREAT FALLS
01653000	38 48 23	77 06 36	BFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	CAMERON RUN AT ALEXANDRIA, VA
01654000	38 48 46	77 13 43	AFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	ACCOTINK CREEK NEAR ANNANDALE,
01656100	38 36 58	77 33 16	AFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	CEDAR RUN NEAR ADEN, VA
01658500	38 35 14	77 25 44	AFL	POTOMAC	LOWER POTOMAC	2070011	S FORK QUANTICO CR NEAR INDEPEN
01660400	38 29 25	77 26 02	AFL	POTOMAC	LOWER POTOMAC	2070011	AQUIA CREEK NEAR GARRISONVILLE,
01662800	38 39 20	78 04 27	AFL	RAPPAHANNOCK	RAPIDAN-UPPER RAPPAHANNOCK	2080103	BATTLE RUN NEAR LAUREL MILLS, V
01663500	38 35 30	77 57 55	AFL	RAPPAHANNOCK	RAPIDAN-UPPER RAPPAHANNOCK	2080103	HAZEL RIVER AT RIXEYVILLE, VA
01664000	38 31 50	77 48 50	AFL	RAPPAHANNOCK	RAPIDAN-UPPER RAPPAHANNOCK	2080103	RAPPAHANNOCK RIVER AT REMINIGTO
01665000	38 28 50	78 03 10	AFL	RAPPAHANNOCK	RAPIDAN-UPPER RAPPAHANNOCK	2080103	MOUNTAIN RUN NEAR CULPEPER, VA
01665500	38 16 50	78 20 25	AFL	RAPPAHANNOCK	RAPIDAN-UPPER RAPPAHANNOCK	2080103	RAPIDAN RIVER NEAR RUCKERSVILLE
01666500	38 19 30	78 05 45	AFL	RAPPAHANNOCK	RAPIDAN-UPPER RAPPAHANNOCK	2080103	ROBINSON RIVER NEAR LOCUST DALE
01667500	38 21 01	77 58 31	AFL	RAPPAHANNOCK	RAPIDAN-UPPER RAPPAHANNOCK	2080103	RAPIDAN RIVER NEAR CULPEPER, VA
01668000	38 19 20	77 31 05	AFL	RAPPAHANNOCK	LOWER RAPPAHANNOCK	2080104	RAPPAHANNOCK RIVER NEAR FREDERI
01668500	38 02 23	76 49 38	BFL	RAPPAHANNOCK	LOWER RAPPAHANNOCK	2080104	CAT POINT CREEK NEAR MONTROSS,
01669000	37 52 37	76 54 03	BFL	RAPPAHANNOCK	LOWER RAPPAHANNOCK	2080104	PISCATAWAY CREEK NEAR TAPPAHANN
01669520	37 38 01	76 41 48	BFL	YORK	GREAT WICOMICO-PIANKATANK	2080102	PRAGON SWAMP AT MASCOT, VA
01670000	37 28 14	76 33 48	BFL	YORK	GREAT WICOMICO-PIANKATANK	2080102	BEAVERDAM SWAMP NEAR ARK, VA
01670400	38 00 48	77 42 06	AFL	YORK	PAMUNKEY	2080106	N ANNA RIVER NEAR PARTLOW, VA
01671020	37 51 00	77 25 41	BFL	YORK	PAMUNKEY	2080106	N ANNA RIVER AT HART CORNER NR
01671100	37 52 21	77 30 48	AFL	YORK	PAMUNKEY	2080106	LITTLE RIVER NEAR DOSWELL, VA
01672500	37 47 48	77 32 57	AFL	YORK	PAMUNKEY	2080106	SOUTH ANNA RIVER NEAR ASHLAND,
01673000	37 46 03	77 19 57	BFL	YORK	PAMUNKEY	2080106	PAMUNKEY RIVER NEAR HANOVER, VA
01673550	37 39 44	77 15 29	BFL	YORK	PAMUNKEY	2080106	TOTOPOTOMOY CREEK NEAR STUDLEY,
01673800	38 10 17	77 35 42	AFL	YORK	MATTAPONI	2080105	PO RIVER NEAR SPOTSYLVANIA, VA
01674000	38 03 42	77 23 10	BFL	YORK	MATTAPONI	2080105	MATTAPONI RIVER NEAR BOWLING GR
01674500	37 53 16	77 09 48	BFL	YORK	MATTAPONI	2080105	MATTAPONI RIVER NEAR BELHAHVILL
01677000	37 26 17	76 47 12	BFL	YORK	YORK	2080107	WARE CREEK NEAR TOANO, VA
02011400	38 02 32	79 52 54	AFL	JAMES	UPPER JAMES	2080201	JACKSON RIVER NEAR BACOVA, VA
02011460	38 14 43	79 46 08	AFL	JAMES	UPPER JAMES	2080201	BACK CREEK NEAR SUNRISE, VA
02011470	38 11 25	79 48 43	AFL	JAMES	UPPER JAMES	2080201	BACK CREEK AT SUUNRISE, VA
02011490	38 12 52	79 50 16	AFL	JAMES	UPPER JAMES	2080201	LITTLE BACK CREEK NEAR SUNRISE,
02011500	38 04 10	79 53 50	AFL	JAMES	UPPER JAMES	2080201	BACK CREEK NEAR MOUNTIAN GROVE,
02011800	37 56 54	79 56 58	AFL	JAMES	UPPER JAMES	2080201	JACKSON R BL GATHRIGHT DAM, NR
02013000	37 48 10	80 02 50	AFL	JAMES	UPPER JAMES	2080201	DUNLAP CREEK NEAR COVINGTON, VA
02013100	37 47 19	80 00 03	AFL	JAMES	UPPER JAMES	2080201	JACKSON RIVER AT COVINGTON, VA
02014000	37 43 44	80 02 33	AFL	JAMES	UPPER JAMES	2080201	POTTS CREEK NEAR COVINGTON, VA
02015700	38 11 43	79 34 14	AFL	JAMES	UPPER JAMES	2080201	BULL PASTURE RIVER AT WILLIAMSV
02016000	37 47 30	79 45 35	AFL	JAMES	UPPER JAMES	2080201	COWPASTURE RIVER NEAR CLIFTON F
02016500	37 46 25	79 47 05	AFL	JAMES	UPPER JAMES	2080201	JAMES RIVER AT LICK RUN, VA
02017500	37 30 22	80 06 25	AFL	JAMES	UPPER JAMES	2080201	JOHNS CREEK AT NEW CASTLE, VA
02018000	37 39 57	79 54 42	AFL	JAMES	UPPER JAMES	2080201	CRAIG CREEK AT PARR, VA
02018500	37 28 05	80 00 20	AFL	JAMES	UPPER JAMES	2080201	CATAWBA CREEK NEAR CATAWBA, VA
02019500	37 31 50	79 40 45	AFL	JAMES	UPPER JAMES	2080201	JAMES RIVER AT BUCHANAN, VA
02020500	37 59 16	79 29 38	AFL	JAMES	MAURY	2080202	CALFPASTURE R ABOVE MILL CR AT
02021500	37 54 26	79 25 20	AFL	JAMES	MAURY	2080202	MAURY RIVER AT ROCKBRIDGE BATHS

VIRGINIA STREAMFLOW GAGING STATIONS (Cont'd)

STATION NAME (S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
02022500	37 49 32	79 26 36	AFL	JAMES	MAURY	2080202	KERRS CREEK NEAR LEXINGOTN, VA
02024000	37 45 45	79 23 30	AFL	JAMES	MAURY	2080202	MAURY RIVER NEAR BUENA VISTA, V
02025500	37 30 04	79 15 46	AFL	JAMES	MIDDLE JAMES-BUFFALO	2080203	JAMES RIVER AT HOLCOMBS ROCK, V
02026000	37 32 10	78 49 30	AFL	JAMES	MIDDLE JAMES-BUFFALO	2080203	JAMES RIVER AT BENT CREEK, VA
02027000	37 42 55	78 58 55	AFL	JAMES	MIDDLE JAMES-BUFFALO	2080203	TYE RIVER NEAR LOVINGTON, VA
02027500	37 42 08	79 01 40	AFL	JAMES	MIDDLE JAMES-BUFFALO	2080203	PINEY RIVER AT PINEY RIVER, VA
02027800	37 36 20	78 55 25	AFL	JAMES	MIDDLE JAMES-BUFFALO	2080203	BUFFALO RIVER NEAR TYE RIVER, V
02028500	37 52 10	78 49 25	AFL	JAMES	MIDDLE JAMES-BUFFALO	2080203	ROCKFISH RIVER NEAR GREENFIELD,
02029000	37 47 50	78 29 30	AFL	JAMES	MIDDLE JAMES-BUFFALO	2080203	JAMES RIVER AT SCOTTSVILLE, VA
02030000	37 48 45	78 27 20	AFL	JAMES	MIDDLE JAMES-BUFFALO	2080203	HARDWARE RIVER NEAR SCOTTSVILLE
02030500	37 42 10	78 22 40	AFL	JAMES	MIDDLE JAMES-BUFFALO	2080203	SLATE RIVER NEAR ARVONIA, VA
02031000	38 06 09	78 35 35	AFL	JAMES	RIVANNA	2080204	MECHUMS RIVER NEAR WHITE HALLS,
02032250	38 08 26	78 33 22	AFL	JAMES	RIVANNA	2080204	MOORMANS RIVER NEAR FREE UNION,
02032400	38 09 16	78 32 22	AFL	JAMES	RIVANNA	2080204	BUCK MOUNTAIN CREEK NEAR FREE U
02032515	38 06 06	78 27 39	AFL	JAMES	RIVANNA	2080204	S FORK RIVANNA RIVER NR CHARLOT
02032680	38 05 16	78 24 44	AFL	JAMES	RIVANNA	2080204	NORTH FORK RIVANNA RIVER NEAR P
02034000	37 51 28	78 15 58	AFL	JAMES	RIVANNA	2080204	RIVANNA RIVER AT PALMYRA, VA
02035000	37 40 15	78 05 10	AFL	JAMES	MIDDLE JAMES-WILLIS	2080205	JAMES AT CARTERSVILLE, VA
02036500	37 35 52	77 49 12	AFL	JAMES	MIDDLE JAMES-WILLIS	2080205	FINE CREEK AT FINE CREEK MILLS,
02037000	37 33 52	77 34 28	AFL	JAMES	MIDDLE JAMES-WILLIS	2080205	JAMES R AND KANAWHA CANAL NEAR
02037500	37 33 47	77 32 50	AFL	JAMES	MIDDLE JAMES-WILLIS	2080205	JAMES RIVER NEAR RICHMOND, VA
02038000	37 26 37	77 31 21	AFL	JAMES	LOWER JAMES	2080206	FALLING CREEK NEAR CHESTERFIELD
02038850	37 24 55	78 38 10	AFL	JAMES	APPOMATTOX	2080207	HOLIDAY CREEK NEAR ANDERSONVILL
02039000	37 15 25	78 29 12	AFL	JAMES	APPOMATTOX	2080207	BUFFALO CREEK NEAR HAMPDEN SYDN
02039500	37 18 25	78 23 20	AFL	JAMES	APPOMATTOX	2080207	APPOMATTOX RIVER AT FARMVILLE,
02040000	37 25 17	77 51 33	AFL	JAMES	APPOMATTOX	2080207	APPOMATTOX RIVER AT MATTOAX, VA
02041000	37 16 59	77 52 12	AFL	JAMES	APPOMATTOX	2080207	DEEP CREEK NEAR MANNBORO, VA
02041650	37 13 28	77 28 32	AFL	JAMES	APPOMATTOX	2080207	APPOMATTOX RIVER AT MATOACA, VA

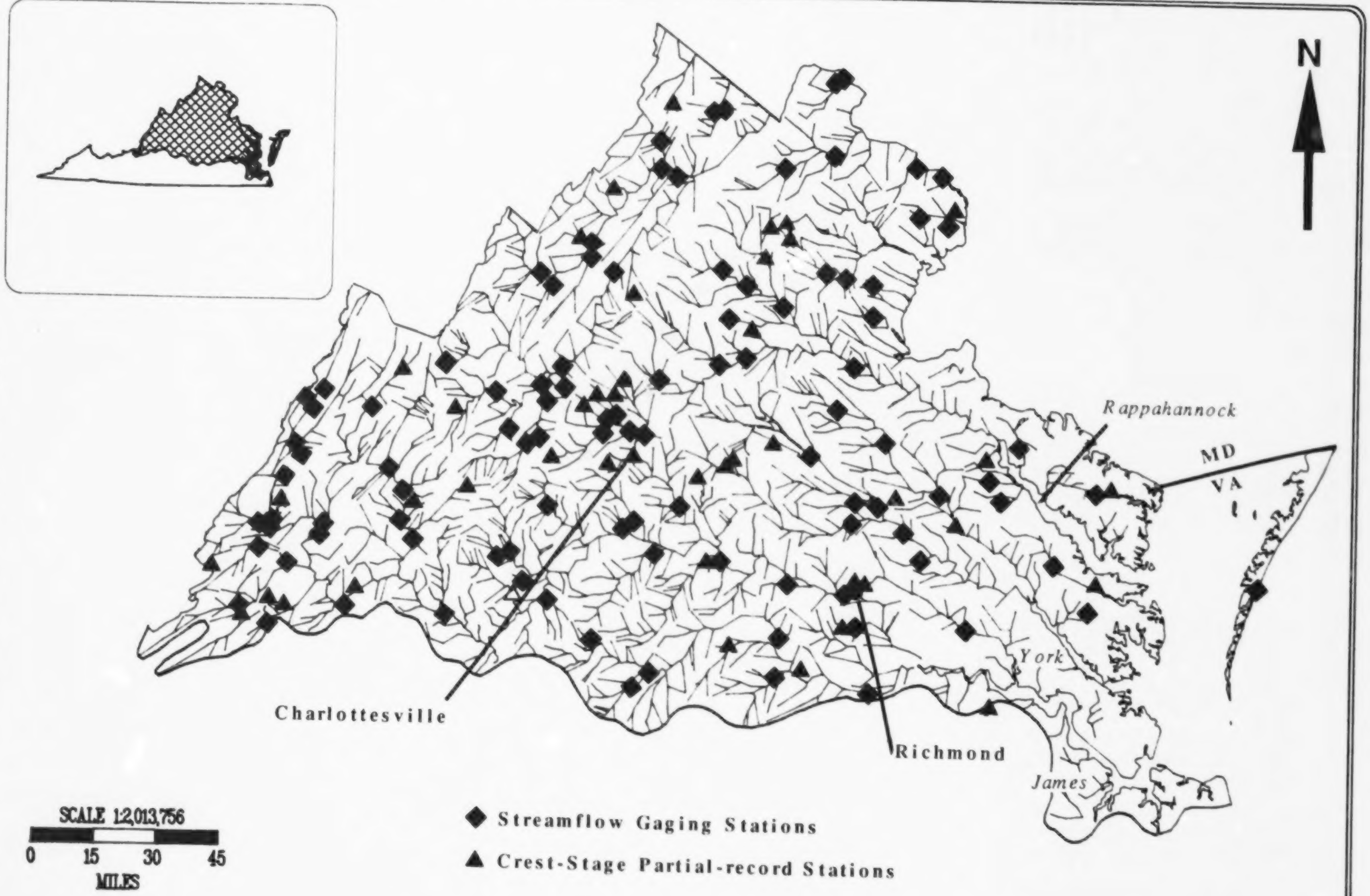
VIRGINIA STREAMFLOW CREST-STAGE PARTIAL-RECORD STATIONS

STATION NAME (S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
01613900	39 12 52	78 17 18	AFL	POTOMAC	CONOCOCHEAGUE-OPEQUON	2070004	HOGUE CREEK NEAR HAYFIELD, VA
01622400	38 11 55	79 13 10	AFL	POTOMAC	SOUTH FORK SHENANDOAH	2070005	BUFFALO BRANCH TRIBUTARY NR. CH
01629945	38 34 31	78 27 32	AFL	POTOMAC	SOUTH FORK SHENANDOAH	2070005	CHUB RUN NR. STANLEY, VA
01632970	38 45 44	78 41 06	AFL	POTOMAC	NORTH FORK SHENANDOAH	2070006	CROOKED RUN NR. MT. JACKSON, VA
01633650	38 55 48	78 32 43	AFL	POTOMAC	NORTH FORK SHENANDOAH	2070006	PUGHS RUN NR. WOODSTOCK, VA
01652500	38 50 35	77 05 09	BFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	FOURMILE RUN AT ALEXANDRIA, VA
01653000	38 48 23	77 06 36	BFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	CAMERON RUN AT ALEXANDRIA, VA
01655500	38 44 25	77 47 16	AFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	CEDAR RUN NEAR WARRENTON, VA
01656000	38 38 12	77 37 31	AFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	CEDAR RUN NEAR CATLETT, VA
01656200	38 48 25	77 48 47	AFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	BROAD RUN NR. WARRENTON, VA
01661600	37 53 15	76 27 00	BFL	YORK	GREAT WICOMICO-PIANKATANK	2080102	GREAT WICOMICO RIVER NR. HORSE
01661800	37 52 36	76 29 42	BFL	YORK	GREAT WICOMICO-PIANKATANK	2080102	BUSH MILL STREAM NEAR HEATHSVIL
01661900	38 47 57	77 52 09	AFL	RAPPAHANNOCK	RAPIDAN-UPPER RAPPAHANNOCK	2080103	CARTER RUN NR. MARSHALL, VA
01662000	38 41 05	77 54 15	AFL	RAPPAHANNOCK	RAPIDAN-UPPER RAPPAHANNOCK	2080103	RAPPAHANNOCK RIVER NEAR WARRENT
01665050	38 27 04	77 57 24	AFL	RAPPAHANNOCK	RAPIDAN-UPPER RAPPAHANNOCK	2080103	PONY MOUNTAIN BRANCH NR. CULPEP
01668300	38 00 05	76 58 40	BFL	RAPPAHANNOCK	LOWER RAPPAHANNOCK	2080104	FARMERS HALL CREEK NR. CHAMPLAI
01668800	37 55 38	76 57 16	BFL	RAPPAHANNOCK	LOWER RAPPAHANNOCK	2080104	HOSKINS CREEK NEAR TAPPAHANNOCK
01669800	37 34 34	76 31 30	BFL	YORK	GREAT WICOMICO-PIANKATANK	2080102	MY LADYS SWAMP NR. SALUDA, VA
01670300	37 57 35	77 11 20	BFL	YORK	MATTAPONI	2080105	CONTRARY CREEK NEAR MINERAL, VA
01671615	37 57 35	78 11 20	AFL	YORK	PAMUNKEY	2080106	FOSTER CREEK NR. FERNCLIFF, VA
01671650	38 00 08	78 04 22	AFL	YORK	PAMUNKEY	2080106	WALDROP CR. NR. LOUISA, VA
01671750	38 01 02	78 03 06	AFL	YORK	PAMUNKEY	2080106	HARRIS CR. NR. TREVILIANS, VA
01674200	37 52 55	77 21 35	BFL	YORK	MATTAPONI	2080105	REEDY CR. NR. DAWN, VA
01674700	37 47 05	77 06 23	BFL	YORK	MATTAPONI	2080105	AYLETT CR. AT AYLETT, VA
02012500	37 52 36	79 58 19	AFL	JAMES	UPPER JAMES	2080201	JACKSON RIVER AT FALLING PRING,
02012950	37 39 25	80 14 10	AFL	JAMES	UPPER JAMES	2080201	SWEET SPRINGS CR TRIB AT SWEET
02015600	38 19 30	79 26 14	AFL	JAMES	UPPER JAMES	2080201	COWPASTURE RIVER NR. HEAD WATER
02017300	37 30 06	80 06 18	AFL	JAMES	UPPER JAMES	2080201	CRAIG CREEK AT NEW CASTLE, VA
02017700	37 33 21	79 59 52	AFL	JAMES	UPPER JAMES	2080201	CRAIG CREEK TRIBUTARY NR. NEW C
02018800	37 32 07	79 56 03	AFL	JAMES	UPPER JAMES	2080201	NORTH FORK NR. FINCASTLE, VA
02020100	37 35 27	79 38 04	AFL	JAMES	UPPER JAMES	2080201	RENICK RUN NR. BUCHANAN, VA
02021700	37 53 00	79 23 10	AFL	JAMES	MAURY	2080202	CEDAR GROVE GRANCH NR. ROCKBRID
02023300	37 55 50	79 09 55	AFL	JAMES	MAURY	2080202	SOUTH RIVER NR. STEELES TAVERN,
02027700	37 33 45	78 57 35	AFL	JAMES	MIDDLE JAMES-BUFFALO	2080203	BUFFALO RIVER TRIBUTARY NR. AMH

VIRGINIA STREAMFLOW CREST-STAGE PARTIAL-RECORD STATIONS (Cont'd)

STATION NAME (S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
02030800	38 01 48	78 48 30	AFL	JAMES	RIVANNA	2080204	STOCKTON CR. NR. AFTON, VA
02032200	38 12 10	78 40 17	AFL	JAMES	RIVANNA	2080204	DOYLES RIVER NR. WHITE HALL, VA
02032300	38 14 05	78 37 02	AFL	JAMES	RIVANNA	2080204	MUDDY RUN NR. STANARDSVILLE, VA
02032540	38 16 48	78 30 50	AFL	JAMES	RIVANNA	2080204	HANEYTOWN CR. NR. STANARDSVILLE
02032550	38 14 16	78 32 32	AFL	JAMES	RIVANNA	2080204	LYNCH RIVER AT NORTONSVILLE, VA
02032700	38 02 32	78 28 30	AFL	JAMES	RIVANNA	2080204	SCHENKS BRANCH AT CHARLOTTESVIL
02033300	38 00 25	78 34 25	AFL	JAMES	RIVANNA	2080204	MOORES CR. NR. CHARLOTTESVILLE,
02034500	37 40 00	78 10 00	AFL	JAMES	MIDDLE JAMES-WILLIS	2080205	WILLIS RIVER AT LAKESIDE VILLAG
02037800	37 27 15	77 35 20	AFL	JAMES	LOWER JAMES	2080206	FALLING CR. NR. MIDLOTHIAN, VA
02040500	37 23 27	78 03 45	AFL	JAMES	APPOMATTOX	2080207	FLAT CR. NR. AMELIA, VA
02042250	37 10 29	76 59 13	AFL	JAMES	LOWER JAMES	2080206	BAILEY BRANCH TRIBUTARY AT SPRI
02042300	37 35 45	77 30 40	AFL	JAMES	MIDDLE JAMES-WILLIS	2080205	HORSEPEN BRANCH AT RICHMOND, VA
02042400	37 35 10	77 29 55	AFL	JAMES	MIDDLE JAMES-WILLIS	2080205	JORDANS BRANCH AT RICHMOND, VA
02042780	37 18 50	77 46 01	AFL	JAMES	APPOMATTOX	2080207	W BRANCH LONG HILL SWAMP NR. LI

VIRGINIA STREAMFLOW GAGING STATIONS



USGS STREAMFLOW GAGING STATION NETWORK IN WEST VIRGINIA

PROGRAM DESCRIPTION: The USGS Streamflow Gaging Station Network in West Virginia consists of 13 streamflow gaging stations within the Chesapeake Bay basin. Ten stations are maintained by the USGS West Virginia District and three are maintatined by the USGS Mid-Atlantic District. The data collected from this long-term streamflow gaging network represent part of the National Water Data System collected by the USGS and cooperating state and federal agencies.

PROGRAM OBJECTIVES: To provide basic information for hydrologic appraisals, environmental impact assessments, and energy related studies.

DATE INITIATED: 1895 - 1979 (depending on station)

COORDINATING AGENCY:

U.S. Geological Survey
West Virginia District
Water Resources Division
603 West Morris Street
Charleston, West Virginia 25301

U.S. Geological Survey
Mid-Atlantic District
Water Resources Division
208 Carroll Building
8600 LaSalle Road
Towson, Maryland 21204

FUNDING AGENCIES:

U.S. Geological Survey
U.S. Army Corps of Engineers
West Virginia Department of Natural Resources
Soil Conservation Service, U.S. Department of Agriculture
Potomac Edison Company

PARTICIPATING AGENCIES:

U.S. Geological Survey-Charleston (USGS-Charleston)
U.S. Geological Survey-Towson (USGS-Towson)

INVESTIGATORS:

District Chief	David H. Appel	USGS - Charleston
District Chief	Herbert J. Frieberger	USGS - Towson

PARAMETERS:

Average Discharge
Extremes for Period of Record
Extremes Outside Period of Record
Extremes for Current Year
Mean Daily Average

STATIONS: There are 13 stations located throughout the Chesapeake Bay drainage area in West Virginia.

SAMPLE COLLECTION: Data are obtained at 13 stations - three are maintained by the Cumberland, Maryland office of the Mid-Atlantic District and ten are maintained by the USGS office in West Virginia. These data consist of a continuous record of stage, individual measurements of discharge throughout a range of stages, and notations regarding factors that may affect the relationship between stage and discharge. It is used, together with supplemental information such as weather records, to compute average daily discharges.

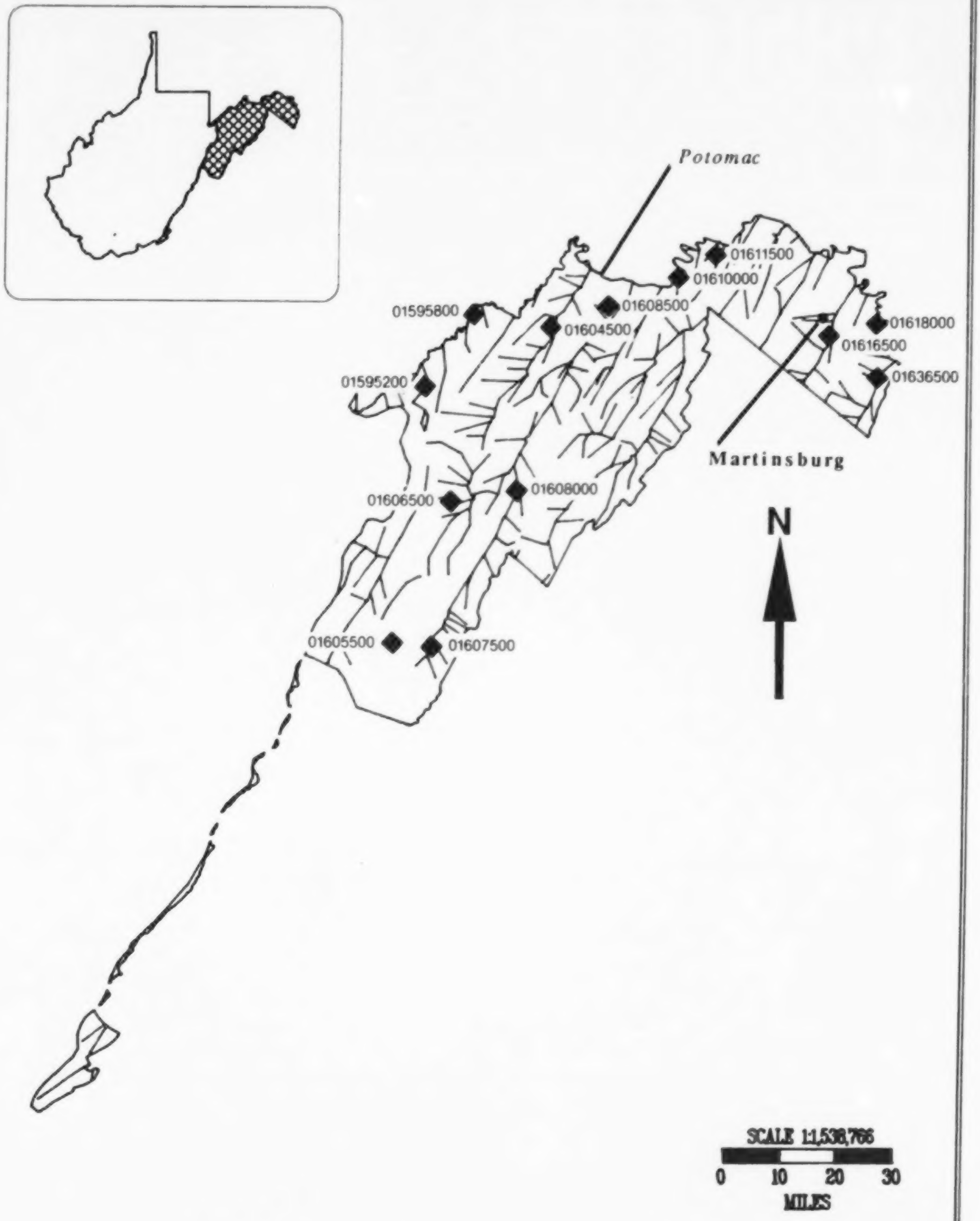
Continuous records of stage are obtained with digital recorders or by a satellite data collection platform. Measurements of discharge are made with current meters using methods adopted by the U.S. Geological Survey. Stations are visited approximately every 6 weeks to ensure that all equipment is working properly.

PROGRAM INTEGRATION: The West Virginia Streamflow Gaging Network is a subset of a national program coordinated by the U.S. Geological Survey.

WEST VIRGINIA STREAMFLOW GAGING STATIONS

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
01595200	39 16 10	79 15 45	AFL	POTOMAC	NORTH BRANCH POTOMAC	2070002	NEAR MOUNT STORM, WV
01595800	39 26 44	79 06 39	AFL	POTOMAC	NORTH BRANCH POTOMAC	2070002	AT BARNUM, WV
0160000	39 33 59	78 50 25	AFL	POTOMAC	NORTH BRANCH POTOMAC	2070002	AT PINTO, MD
01604500	39 26 35	78 49 20	AFL	POTOMAC	NORTH BRANCH POTOMAC	2070002	NEAR HEADSVILLE, WV
01605500	38 38 14	79 20 14	AFL	POTOMAC	SOUTH BRANCH POTOMAC	2070001	AT FRANKLIN, WV
01606500	38 59 34	79 10 26	AFL	POTOMAC	SOUTH BRANCH POTOMAC	2070001	NEAR PETERSBURG, WV
01607500	38 37 53	79 14 38	AFL	POTOMAC	SOUTH BRANCH POTOMAC	2070001	AT BRANDYWINE, WV
01608000	39 00 44	78 57 23	AFL	POTOMAC	SOUTH BRANCH POTOMAC	2070001	NEAR MOOREVILLE, WV
01608500	39 26 49	78 39 16	AFL	POTOMAC	SOUTH BRANCH POTOMAC	2070001	NEAR SPRINGFIELD, WV
01611500	39 34 43	78 18 34	AFL	POTOMAC	CACAPON-TOWN	2070003	NEAR GREAT CACAPON, WV
01616500	39 25 25	77 56 20	AFL	POTOMAC	CONOCOCHEAGUE-OPEQUON	2070004	NEAR MARTINSVILLE, WV
01618000	39 26 04	77 48 07	AFL	POTOMAC	CONOCOCHEAGUE-OPEQUON	2070004	AT SHEPHERDSTOWN, WV
01636500	39 16 55	77 47 22	AFL	POTOMAC	SHENANDOAH	2070007	AT MILLVILLE, WV

WEST VIRGINIA STREAMFLOW GAGING STATIONS



NEW YORK OBSERVATION WELL NETWORK

PROGRAM DESCRIPTION: The New York Observation Well Network consists of 10 wells in the Chesapeake Bay basin. Data are obtained from these wells on either a continuous or weekly basis.

PROGRAM OBJECTIVE: To provide a long-term data base of ground water level.

DATE INITIATED: 1939 - 1984

COORDINATING AGENCY:

U.S. Geological Survey
New York District
Water Resources Division
P.O. Box 1669
Albany, New York 12201

FUNDING AGENCY:

U.S. Geological Survey
New York State Department of Environmental Conservation

PARTICIPATING AGENCIES:

U.S. Geological Survey-Albany (USGS-Albany)
New York State Department of Environmental Conservation (NYDEC)

PRINCIPAL INVESTIGATORS:

Program Coordinator	John Williams	USGS-Albany

PARAMETERS:

Water Level

STATIONS: There are 10 stations in the Susquehanna River basin in Western New York

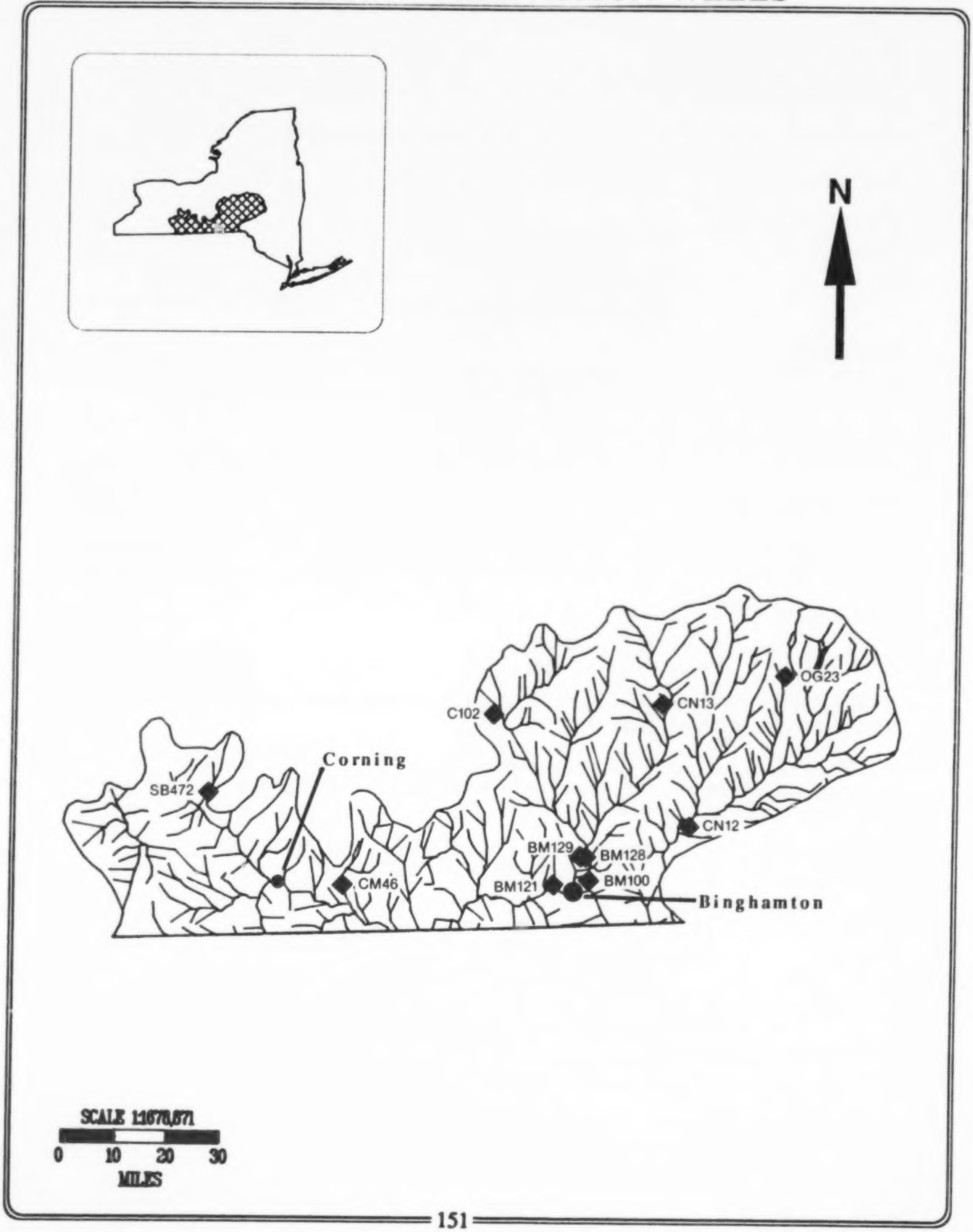
SAMPLE COLLECTION: Data may be collected weekly by an observer, or with continuous recording instruments which are checked every six weeks.

PROGRAM INTEGRATION: This program is part of a U.S. Geological Survey.nationwide network of ground water observation wells.

NEW YORK OBSERVATION WELLS

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
BM100	42 06 46	75 53 12	AFL	SUSQUEHANNA	CHENANGO	2050102	BROOME CO AT FREDERICK ST BINGH
BM121	42 06 57	75 58 35	AFL	SUSQUEHANNA	WEGO-WAPPASENING	2050103	BROOME CO AT MAIN ST JOHNSON CI
BM128	42 11 38	75 51 13	AFL	SUSQUEHANNA	CHENANGO	2050102	BROOME CO AT JEFFREY DRIVE KATT
BM129	42 11 57	75 53 47	AFL	SUSQUEHANNA	CHENANGO	2050102	2.6 MILES SOUTH OF CASTLE CREEK
C102	42 35 41	76 11 47	AFL	SUSQUEHANNA	CHENANGO	2050102	CORTLAND CO AT MUNIC WATER WORK
CM46	42 08 29	76 48 48	AFL	SUSQUEHANNA	CHEMUNG	2050105	CHEMUNG CO 1 MILE SOUTH OF HORS
CN12	42 15 56	75 28 16	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA	2050101	CHENANGO CO 2 MILES SOUTH OF BA
CN13	42 38 49	75 31 57	AFL	SUSQUEHANNA	CHENANGO	2050102	CHENANGO CO 2.7 MILES SOUTH OF
OG23	42 41 36	75 02 51	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA	2050101	OTSEGO CO 3.2 MLS SOUTHEAST OF
SB472	42 24 45	77 20 33	AFL	SUSQUEHANNA	CHEMUNG	2050105	STEUBEN CO 3.2 MILES EAST OF KE

NEW YORK OBSERVATION WELLS



PENNSYLVANIA OBSERVATION WELL NETWORK

PROGRAM DESCRIPTION: The Pennsylvania Observation Well Network consists of 25 observation wells in the Chesapeake Bay basin to monitor groundwater levels. A monthly factsheet is published containing mean lows for each well during the previous month.

PROGRAM OBJECTIVE: To provide a long-term data base of groundwater level.

DATE INITIATED: 1950 - 1983 (depending on well)

COORDINATING AGENCY:

U.S. Geological Survey
Water Resources Division
P.O. Box 1107
Harrisburg, Pennsylvania 17108

FUNDING AGENCIES:

U.S. Geological Survey
Pennsylvania Department of Environmental Resources

PARTICIPATING AGENCY: U.S. Geological Survey-Harrisburg (USGS-Harrisburg)

INVESTIGATORS:

Subdistrict Chief	David Wangsness	USGS-Harrisburg
Principal Investigator	Randall Conger	USGS-Harrisburg

PARAMETERS:

Water Level

STATIONS: There are 25 stations located in Pennsylvania's portion of the Susquehanna River basin or approximately one per county.

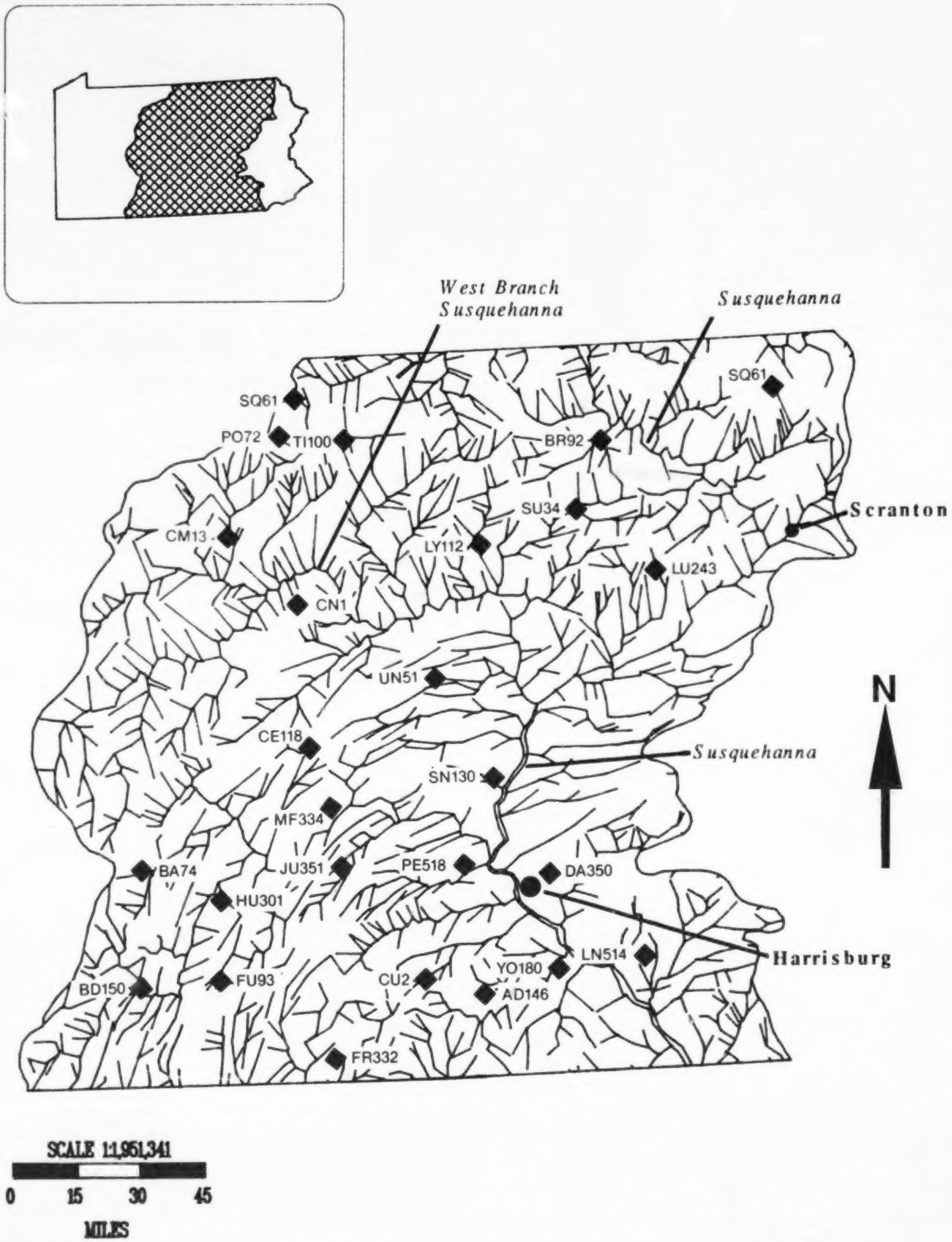
SAMPLE COLLECTION: All stations are equipped with continuous recording instruments. Some stations are equipped with data-collection platforms as well. Stations are visited approximately once a month.

PROGRAM INTEGRATION: This program is part of a U.S. Geological Survey. nationwide groundwater observation well network.

PENNSYLVANIA OBSERVATION WELLS

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
AD146	39 58 46	77 04 06	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	ADAMS COUNTY AT STATE GAME LAND
BA74	40 24 52	78 27 13	AFL	SUSQUEHANNA	UPPER JUNIATA	2050302	BLAIR COUNTY AT NATIONAL PARK L
BD150	40 02 17	78 28 19	AFL	SUSQUEHANNA	RAYSTOWN	2050303	BEDFORD COUNTY AT BEDFOR, PA
BR92	41 43 30	76 28 05	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-TUNKHANNOCK	2050106	BRADFORD COUNTY AT MONROETOWN,
CE118	40 45 18	77 57 55	AFL	SUSQUEHANNA	UPPER JUNIATA	2050302	CENTRE COUNTY AT STATE GAME LAN
CM13	41 27 32	78 03 42	AFL	SUSQUEHANNA	SINNEMAHONING	2050202	CAMERON COUNTY AT SINNEMAHONING
CN1	41 14 24	77 46 22	AFL	SUSQUEHANNA	MIDDLE WEST BRANCH SUSQUEHANNA	2050203	CLINTON COUNTY AT SPROUL STATE
CU2	40 02 09	77 18 33	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA-SWATARA	2050305	CUMBERLAND COUNTY AT MACHAUX ST
DA350	40 21 18	76 46 22	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA-SWATARA	2050305	DAUPHIN COUNTY AT RD1, LINGLKES
FR332	39 47 31	77 41 17	AFL	POTOMAC	CONOCOCHEAGUE-OPEQUON	2070004	FRANKLIN COUNTY NEAR GREENCASTL
FU93	40 03 02	78 09 04	AFL	SUSQUEHANNA	LOWER JUNIATA	2050304	FULTON COUNTY AT BUCHANAN STATE
HU301	40 18 43	78 07 54	AFL	SUSQUEHANNA	RAYSTOWN	2050303	HUNTINGDON COUNTY AT TROUGH CRE
JU351	40 24 11	77 37 48	AFL	SUSQUEHANNA	LOWER JUNIATA	2050304	JUNIATA COUNTY AT STATE GAME LA
LN514	40 05 06	76 23 52	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	LANCASTER COUNTY NEAR LANDSVILL
LU243	41 18 00	76 16 25	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-LACKAWANNA	2050107	LUZERNE COUNTY AT RICKETTS GLEN
LY112	41 24 27	76 59 44	AFL	SUSQUEHANNA	LOWER WEST BRANCH SUSQUEHANNA	2050206	LYCOMING COUNTY NEAR TROUT RUN,
MF344	40 41 40	77 35 40	AFL	SUSQUEHANNA	LOWER JUNIATA	2050304	MIFFLIN COUNTY AT ROSEANN, PA
PE518	40 23 39	77 07 45	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA-SWATARA	2050305	PERRY COUNTY AT STATE GAME LAND
PO72	41 46 40	77 49 38	AFL	SUSQUEHANNA	PINE	2050205	POTTER COUNTY AT DENTON HILL ST
SN130	40 39 39	76 59 10	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA-PENNS	2050301	SNYDER COUNTY AT STATE GAME LAN
SQ61	41 53 23	77 45 13	AFL	SUSQUEHANNA	PINE	2050205	SUSQUEHANNA COUNTY AT STATE GAM
SU34	41 30 26	76 35 29	AFL	SUSQUEHANNA	LOWER WEST BRANCH SUSQUEHANNA	2050206	SULLIVAN COUNTY NEAR FORKSVILLE
TI100	41 45 13	77 33 37	AFL	SUSQUEHANNA	PINE	2050205	TIOGA COUNTY AT STATE GAME LAND
UN51	40 59 28	77 11 55	AFL	SUSQUEHANNA	LOWER WEST BRANCH SUSQUEHANNA	2050206	URION COUNTY AT RAYMOND B. WINT
YO180	40 03 20	76 45 15	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	YORK COUNTY NEAR ZIONS VIEW

PENNSYLVANIA OBSERVATION WELLS



MARYLAND OBSERVATION WELL NETWORK

PROGRAM DESCRIPTION: The Maryland Observation Well Network was initiated in 1943 as a cooperative program between the Maryland Geological Survey and the U.S. Geological Survey with the purpose of monitoring ground water levels throughout the state of Maryland. Throughout this network, 157 wells are monitored approximately monthly. Four additional wells are equipped with analog continuous recorders, and one well is equipped with a digital continuous recorder. Eighteen wells are measured semi-annually.

PROGRAM OBJECTIVES: To observe groundwater level fluctuations through time, to identify areas of natural and stressed conditions, and to provide historical water level records for groundwater management.

DATE INITIATED: 1943

COORDINATING AGENCY:
U.S. Geological Survey
Mid-Atlantic District
208 Carroll Building
8600 La Salle Road
Towson, Maryland 21204

FUNDING AGENCIES:
U.S. Geological Survey
Maryland Geological Survey

PARTICIPATING AGENCIES:
U.S. Geological Survey-Towson (USGS-Towson)
Maryland Geological Survey (MGS)

INVESTIGATORS:

Principal Investigator	Michael J. Smigaj	USGS-Towson
Principal Investigator	Raymond G. Davis	USGS-Towson
Principal Investigator	Michael D. Tompkins	MGS

PARAMETERS:

Water level

STATIONS: There are 157 observation wells including one spring throughout the state of Maryland.

SAMPLE COLLECTION: Wells are measured every 4-6 weeks with the exception of 18 wells which are monitored twice a year in the spring and the fall. All wells are measured with chalked steel engineer's tape with the exception of those five wells which are equipped with analog or digital recorders.

PROGRAM INTEGRATION: This network is part of a nationwide observation well network. Some wells in this network are also part of the Southern Maryland Observation Well Network.

MARYLAND OBSERVATION WELLS - MONTHLY

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
2S5E1	39 16 17	76 32 20	BFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	AT HOLABIRD INDUSTRIAL PARK
3S2E5	39 16 00	76 35 33	BFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	AT LATROBE PARK
3S5E46	39 15 56	76 31 53	BFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	HOLABIRD INDUSTRIAL PARK, NEAR
5S2E24	39 13 49	76 35 45	BFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	AT FARRINGTON PARK
5S2E25	39 13 49	76 35 45	BFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	AT FARRINGTON PARK
7S4E1	39 12 13	76 32 44	BFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	NEAR HAWKINS POINT, AT SCM PLAN
AA AC 011	39 11 01	76 40 40	BFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	RUNWAY 15, BWI AIRPORT
AA AD 029	39 10 15	76 37 35	BFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	NEAR LINDEN LANE, GLEN BURNIE
AA BF 003	39 09 45	76 28 56	BFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	FORT SMALLWOOD PARK
AA CB 001	39 03 03	76 46 32	BFL	PATUXENT	PATUXENT	2060006	ON DUVALL BRIDGE RD, FT GEORGE
AA CC 040	39 04 23	76 43 20	BFL	PATUXENT	PATUXENT	2060006	ON RIFLE RANGE RD, FT GEORGE G.
AA ED 045	38 54 06	76 38 39	BFL	PATUXENT	PATUXENT	2060006	ANNE ARUNDEL CO POLICE ACADEMY
AA FD 043	38 46 46	76 35 24	BFL	WEST CHESAPEAKE	SEVERN	2060004	0.2 MILE EAST OF TRACY'S LANDIN
AL AH 001	39 40 24	78 27 34	AFL	POTOMAC	CACAPON-TOWN	2070003	2.8 MILES SOUTHEAST OF PRATT
AL BD 002	39 39 30	78 46 09	AFL	POTOMAC	NORTH BRANCH POTOMAC	2070002	CUMBERLAND
AL CA 019	39 30 09	79 05 52	AFL	POTOMAC	NORTH BRANCH POTOMAC	2070002	NORTH END OF FRANKLIN
BA CD 026	39 31 29	76 38 42	AFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	1.4 MILES SOUTH OF SPARKS
BA CE 021	39 31 02	76 34 18	AFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	0.6 MILE WEST OF JACKSONVILLE
BA EA 018	39 20 45	76 51 25	AFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	GRANITE
BA EC 043	39 23 05	76 43 20	AFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	NEAR PIKESVILLE
BA FE 019	39 16 07	76 31 29	BFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	DUNDALK
BA GF 011	39 13 56	76 29 35	BFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	SPARROWS POINT
BA GF 168	39 12 57	76 28 25	BFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	SPARROWS POINT
BA GF 169	39 12 56	76 28 25	BFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	SPARROWS POINT
BA GF 178	39 12 26	76 25 34	BFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	SPARROWS POINT
CA BB 027	38 43 31	76 39 52	BFL	PATUXENT	PATUXENT	2060006	DUNKIRK REGIONAL PARK, DUNKIRK
CA BB 028	38 43 34	76 39 45	BFL	PATUXENT	PATUXENT	2060006	DUNKIRK REGIONAL PARK, DUNKIRK
CA CC 018	38 39 30	76 31 43	BFL	WEST CHESAPEAKE	SEVERN	2060004	NAVAL RESEARCH LAB, RANDLE CLIF
CA CC 057	38 36 05	76 34 46	BFL	PATUXENT	PATUXENT	2060006	HUNTINGTOWN
CA DB 047	38 32 39	76 35 42	BFL	PATUXENT	PATUXENT	2060006	NEAR PRINCE FREDERICK
CA FD 051	38 24 08	76 26 04	BFL	WEST CHESAPEAKE	SEVERN	2060004	CALVERT CLIFFS STATE PARK
CA FD 052	38 23 16	76 28 48	BFL	PATUXENT	PATUXENT	2060006	2 MILES WEST OF LUSBY
CA FD 054	38 24 07	76 26 03	BFL	WEST CHESAPEAKE	SEVERN	2060004	CALVERT CLIFFS STATE PARK
CA FE 022	38 23 18	76 24 24	BFL	WEST CHESAPEAKE	SEVERN	2060004	COLUMBIA LNG PLANT, COVE POINT
CA GD 006	38 19 52	76 27 09	BFL	PATUXENT	PATUXENT	2060006	0.5 MILE NORTHEAST OF SOLOMONS
CE BF 082	39 35 37	75 49 20	BFL	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	HOLLY HALL ELEMENTARY SCHOOL, E
CE CE 054	39 34 33	75 54 49	BFL	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	ELK NECK STATE FOREST NEAR IRIS
CE CE 055	39 32 41	75 50 02	BFL	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	CANAL NATNL WILDLIFE REF NR ELK
CE EE 029	39 24 03	75 52 18	BFL	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	CECILTON
CH BF 128	38 37 22	76 54 40	BFL	POTOMAC	LOWER POTOMAC	2070011	NEAR WASHINTON AVENUE, WALDORF
CH BG 012	38 37 46	76 48 29	BFL	POTOMAC	LOWER POTOMAC	2070011	NEAR FOREST FOAD, CEDARVILLE ST
CH CB 007	38 34 22	77 11 46	BFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	2.5 MILES SOUTHWEST OF INDIAN H
CH DD 033	38 26 07	77 00 26	BFL	POTOMAC	LOWER POTOMAC	2070011	1.8 MILES SOUTHWEST OF FAULKNER
CH EE 016	38 21 03	76 56 02	BFL	POTOMAC	LOWER POTOMAC	2070011	NEAR WAYSIDE
CL AD 047	39 40 08	77 00 56	AFL	POTOMAC	MONOCACY	2070009	UNION MILLS HOMESTEAD PARK
CL BF 001	39 36 38	76 51 00	AFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	HAMPSTEAD
CL BF 184	39 37 54	76 51 24	AFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	GREENMOUNT
CO BC 001	39 03 33	75 50 45	BFL	EASTERN SHORE	CHOPTANK	2060005	BALTIMORE CORNER
CO BD 053	39 02 27	75 47 02	BFL	EASTERN SHORE	CHOPTANK	2060005	GOLDSBORO
CO DC 129	38 53 10	75 50 36	BFL	EASTERN SHORE	CHOPTANK	2060005	WEST DENTON
CO DD 047	38 52 17	75 49 06	BFL	EASTERN SHORE	CHOPTANK	2060005	DENTON SEWAGE LAGOON
DO BG 059	38 37 08	75 50 38	BFL	EASTERN SHORE	BLACKWATER-WICOMICO	2060007	HURLOCK SEWAGE TREATMENT PLANT
DO CD 001	38 31 51	76 08 08	BFL	EASTERN SHORE	CHOPTANK	2060005	NEAR CHRISTS ROCK
DO CE 005	38 33 40	76 04 16	BFL	EASTERN SHORE	CHOPTANK	2060005	CAMBRIDGE PUMPING STATION
DO CE 015	38 34 08	76 04 24	BFL	EASTERN SHORE	CHOPTANK	2060005	NEAR CAMBRIDGE CREEK, CAMBRIDGE
DO CE 021	38 33 46	76 03 03	BFL	EASTERN SHORE	CHOPTANK	2060005	1.5 MILES SOUTHEAST OF CAMBRIDG
DO CE 078	38 32 43	76 04 23	BFL	EASTERN SHORE	CHOPTANK	2060005	AT STONE BOUNDARY ROAD, CAMBRID
DO CE 088	38 34 01	76 03 20	BFL	EASTERN SHORE	CHOPTANK	2060005	EASTERN SHORE STATE HOSPITAL, C
DO DB 017	38 28 00	76 18 07	BFL	EASTERN SHORE	CHOPTANK	2060005	NEAR MD RT 16, TAYLORS ISLAND
FR AF 027	39 42 00	77 19 07	AFL	POTOMAC	MONOCACY	2070009	EMMITSBURG
FR BD 096	39 37 33	77 27 48	AFL	POTOMAC	MONOCACY	2070009	WILLIAM HOUCK AREA, CUNNINGHAM
FR CG 001	39 31 56	77 13 57	AFL	POTOMAC	MONOCACY	2070009	JOHNSVILLE
FR DF 035	39 25 17	77 19 04	AFL	POTOMAC	MONOCACY	2070009	NEAR LAKE LINGANORE
FR EH 011	39 22 57	77 09 56	AFL	POTOMAC	MONOCACY	2070009	.5 MILE WEST OF MOUNT AIRY
GA AG 001	39 40 17	78 58 17	AFL	POTOMAC	NORTH BRANCH POTOMAC	2070002	2.5 MILES NORTHWEST OF FROSTBUR
HA BD 031	39 39 02	76 16 00	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	DUBLIN
HA CA 023	39 31 58	76 30 26	AFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	GUNPOWDER STATE PARK, HESS
HA DE 066	39 29 21	76 10 04	BFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	AT SHORT LANE NEAR ABERDEEN
HA EC 011	39 24 24	76 20 34	BFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	OFF TRIMBLE ROAD, JOPPATOWNE
HA ED 024	39 23 43	76 16 19	BFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	2 MILES SOUTHEAST OF EDGEWOOD

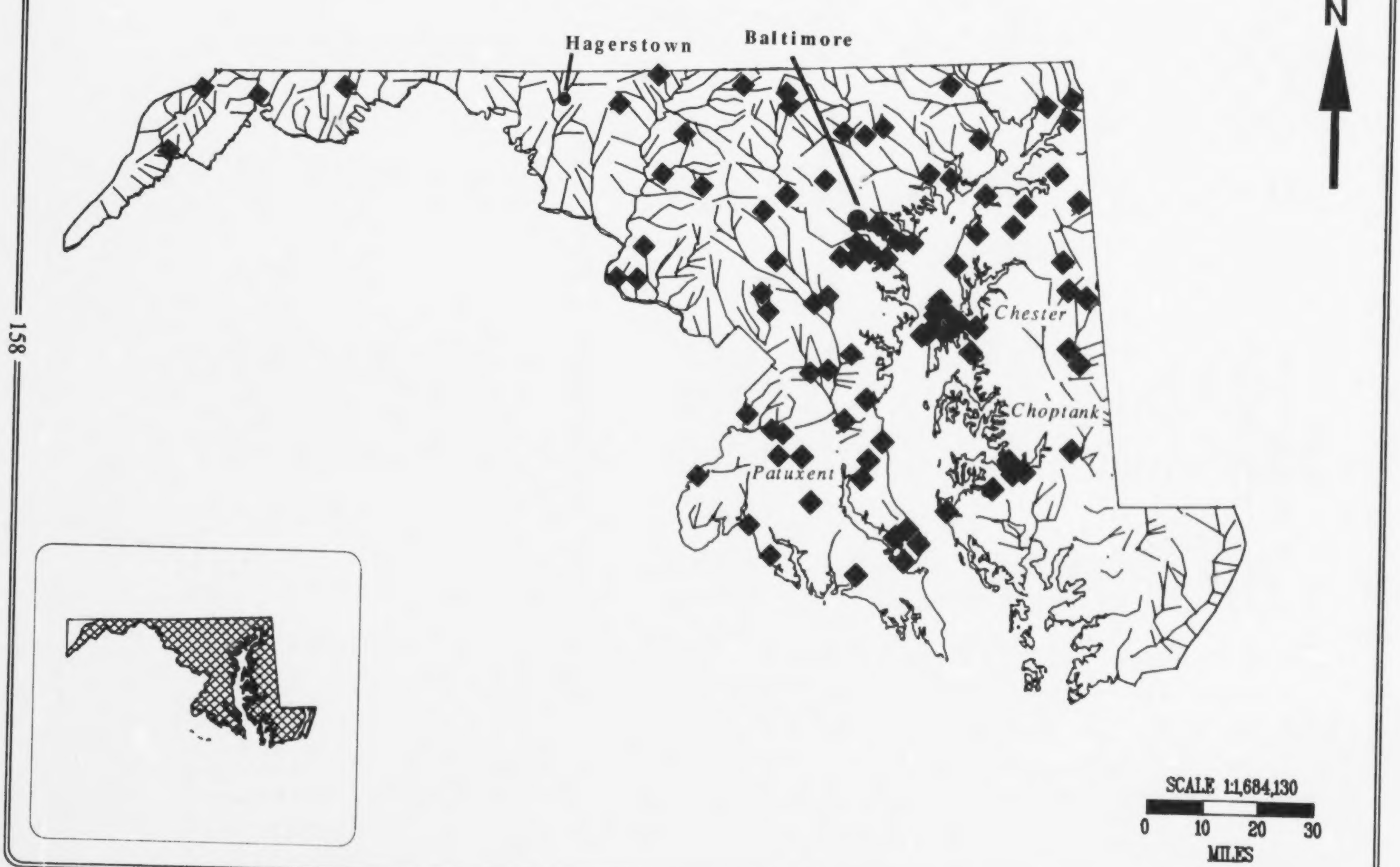
MARYLAND OBSERVATION WELLS - MONTHLY (Cont'd)

STATION NAME (S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
HO BD 001	39 19 10	76 56 57	AFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	SLACKS CORNER
HO CE 038	39 10 01	76 54 00	AFL	PATUXENT	PATUXENT	2060006	J HOPKINS U APPLIED PHYSICS LAB
KE AC 020	39 20 07	76 07 50	CB-2	CHESBAY	UPPER CHESAPEAKE BAY	2060001	US COAST GUARD STATION, STILL P
KE BE 043	39 18 23	75 59 47	BFL	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	AT KENNEDYVILLE
KE BG 033	39 18 15	75 47 21	BFL	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	2 MILES WEST OF MASSEY
KE BG 034	39 18 15	75 47 22	BFL	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	2 MILES WEST OF MASSEY
KE CB 036	39 14 00	76 10 14	BFL	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	NORTH OF FAIRLEE AT SEWAGE TREA
KE CD 044	39 14 32	76 01 55	BFL	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	2.6 MILES NORTHEAST OF CHESTERT
KE DB 040	39 08 37	76 14 04	BFL	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	NEAR ROCK HALL
MO CC 014	39 13 14	77 22 42	AFL	POTOMAC	MIDDLE POTOMAC CATOCTIN	2070008	BARNESVILLE
MO DB 068	39 08 02	77 28 38	AFL	POTOMAC	MIDDLE POTOMAC CATOCTIN	2070008	NIH ANIMAL CENTER, POOLESVILLE
MO DC 072	39 07 52	77 24 31	AFL	POTOMAC	MIDDLE POTOMAC CATOCTIN	2070008	POOLESVILLE
MO EH 020	39 04 34	76 57 30	AFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	FAIRLAND
PG BC 016	39 01 51	76 56 15	BFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	NATNL AGRICULTURAL RFS CENTER,
PG DE 021	38 51 30	76 46 55	BFL	PATUXENT	PATUXENT	2060006	UNIVERSITY OF MD FACILITY AT OA
PG DF 002	38 51 52	76 43 13	BFL	PATUXENT	PATUXENT	2060006	NEAR LEELAND
PG FB 036	38 44 23	77 00 45	BFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	AT BROADWATER ESTATES
PG FC 017	38 42 30	76 55 55	BFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	SOUTH OF FLORAL PARK RD, PISCAT
PG FD 041	38 41 31	76 53 33	BFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	SOUTH OF MD RT 373 NEAR TB
QA CG 001	39 08 41	75 51 52	BFL	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	AT BARCLAY
QA DB 030	39 02 01	76 18 27	BFL	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	0.5 MILE SOUTH OF LOVE POINT
QA DB 032	39 02 01	76 18 27	BFL	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	0.5 MILE SOUTH OF LOVE POINT
QA DB 034	39 00 23	76 17 43	BFL	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	NEAR CLOVERFIELDS COMMUNITY PAR
QA DB 035	39 01 19	76 19 10	BFL	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	1.6 MILES SOUTHWEST OF LOVE POI
QA DB 036	39 02 01	76 18 27	BFL	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	0.5 MILE SOUTH OF LOVE POINT
QA EA 077	38 57 18	76 21 15	BFL	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	AT MATAPEAKE STATE PARK
QA EA 078	38 57 18	76 21 15	BFL	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	AT MATAPEAKE STATE PARK
QA EA 079	38 57 57	76 20 01	BFL	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	AT MOWBRAY PARK, KENT ISLAND
QA EA 080	38 57 57	76 20 01	BFL	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	AT MOWBRAY PARK, KENT ISLAND
QA EA 081	38 57 18	76 21 15	BFL	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	AT MATAPEAKE STATE PARK
QA EB 113	38 57 48	76 17 20	BFL	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	NEAR CHESTER
QA EB 155	38 58 43	76 15 53	BFL	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	NORTH END OF PINEY CREEK ROAD
QA EB 156	38 58 52	76 19 52	BFL	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	NORTH OF US RT 50, NEAR BAY BRI
QA EB 157	38 58 52	76 19 52	BFL	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	NORTH OF US RT 50, NEAR BAY BRI
QA EC 001	38 57 56	76 10 53	BFL	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	NEAR GRASONVILLE
QA FC 007	38 54 35	76 12 03	BFL	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	AT PROSPECT PLANTATION
SM BB 015	38 28 38	76 47 01	BFL	POTOMAC	LOWER POTOMAC	2070011	AT CHARLOTTE HALL
SM BB 022	38 28 38	76 47 01	BFL	POTOMAC	LOWER POTOMAC	2070011	AT CHARLOTTE HALL
SM DD 046	38 16 16	76 36 47	BFL	POTOMAC	LOWER POTOMAC	2070011	LEONARDTOWN SENIOR HIGH SCHOOL,
SM DD 049	38 16 16	76 36 47	BFL	POTOMAC	LOWER POTOMAC	2070011	LEONARDTOWN SENIOR HIGH SCHOOL,

MARYLAND OBSERVATION WELLS - ANNUAL

STATION NAME (S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
FR FB 012	39 18 46	77 37 05	AFL	POTOMAC	MIDDLE POTOMAC CATOCTIN	2070008	OFF PARK AVENUE, BRUNSWICK
QA BE 015	39 12 03	76 02 43	BFL	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	AT KINGSTOWN OFF MD RT 213
QA BE 016	39 12 03	76 02 43	BFL	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	AT KINGSTOWN OFF MD RT 21
QA BE 017	39 12 03	76 02 43	BFL	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	AT KINGSTOWN OFF MD RT 21
SM DD 063	38 16 15	76 36 47	BFL	POTOMAC	LOWER POTOMAC	2070011	LEONARDTOWN SENOIR HIGH SCHOOL,
CL EC 075	39 22 59	77 05 24	AFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	CAMP WOODBROOK
CE BE 073	39 36 37	75 53 50	BFL	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	2 MILES WEST OF ELKTON
CE BE 074	39 36 37	75 53 50	BFL	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	2 MILES WEST OF ELKTON
CE BF 081	39 36 15	75 47 59	BFL	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	THOMPSON ESTATES ELEMENTARY SCH
CE CD 051	39 34 32	75 59 36	BFL	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	1 MILE WEST OF CHARLESTOWN
CE CD 052	39 34 32	75 59 36	BFL	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	1 MILE WEST OF CHARLESTOWN
CE CD 053	39 32 16	75 56 42	BFL	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	ELK NECK STATE FOREST
CE CE 056	39 30 26	75 52 31	BFL	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	1.2 MILES EAST OF COURTHOUSE PO
CE DD 081	39 25 36	75 59 32	BFL	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	NEAR WEST VIEW SHORES
CH BG 013	38 36 52	76 49 57	BFL	POTOMAC	LOWER POTOMAC	2070011	2.7 MILES EAST OF BEANTOWN
CH CF 033	38 33 40	78 51 16	AFL	POTOMAC	NORTH FORK SHENANDOAH	2070006	0.9 MILES NORTHWEST OF BRYANTOW
DO DB 018	38 28 07	76 17 58	BFL	EASTERN SHORE	CHOPTANK	2060005	AT TAYLORS ISLAND
DO DB 019	38 28 47	76 19 09	BFL	EASTERN SHORE	CHOPTANK	2060005	1.3 MILES NORTHWEST OF TAYLORS

MARYLAND OBSERVATION WELLS



SOUTHERN MARYLAND OBSERVATION WELL NETWORK

PROGRAM DESCRIPTION: The Southern Maryland Observation Well Network grew out of the statewide Maryland Observation Well Network in order to expand the groundwater monitoring program in southern Maryland. Through this network, 384 wells are monitored in the spring and fall of each year. Selected wells have continuous water level recording devices to observe daily changes in level due to nearby pumpage. Potentiometric surface maps of water levels in the Magothy and Aquia formations are published annually using the fall values.

PROGRAM OBJECTIVES: To obtain water level and pumpage data in the increasingly populated southern Maryland area.

DATE INITIATED: 1950s

COORDINATING AGENCY:

U.S. Geological Survey
Mid-Atlantic District
Water Resources Division
208 Carroll Building
8600 La Salle Road
Towson, Maryland 21204

FUNDING AGENCIES:

U.S. Geological Survey
Maryland Geological Survey
Maryland Department of Natural Resources

PARTICIPATING AGENCIES:

U.S. Geological Survey-Towson (USGS-Towson)
Maryland Geological Survey (MGS)

INVESTIGATORS:

Principal Investigator	Stephen Curtin	USGS-Towson
Principal Investigator	Fred Mack	MGS-Towson

PARAMETERS:

Water Level

STATIONS: There are 384 wells located in Anne Arundel, Calvert, Charles, Prince Georges and St. Marys counties.

SAMPLE COLLECTION: All wells are measured on a semi-annual basis in the spring and fall. Spring measurements are intended to indicate high water levels before the increase in pumpage during the summer months, and fall measurements are intended to indicate low water levels before the summer pumpage has been reduced. Selected wells have continuous water level recording devices to observe daily changes due to nearby pumpage. These wells are visited monthly.

PROGRAM INTEGRATION: Selected wells in this network are also part of the statewide Maryland Observation Well Network.

SOUTHERN MARYLAND OBSERVATION WELLS

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
AA AD 1	39 10 10	76 37 46	BFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	SAWMILL CRK, .1 MILE NW OF GLEN
AA AD 102	39 10 32	76 38 59	BFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	HAMMOND FY. RD, 1.2 MILES NW OF
AA AD 104	39 10 32	76 38 59	BFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	HAMMOND FY. RD, 1.2 MILES NW OF
AA AD 108	39 10 32	76 38 59	BFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	HAMMOND FY. RD, 1.2 MILES NW OF
AA AD 109	39 10 06	76 38 01	BFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	.3 MILE W OF GLEN BURNIE
AA AD 29	39 10 15	76 37 35	BFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	SAWMILL CRK, .1 MILE N OF GLEN
AA AD 41	39 10 13	76 37 50	BFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	SAWMILL CRK, .2 MILE NW OF GLEN
AA AD 86	39 13 28	76 37 27	BFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	.4 MILES SW OF BROOKLYN PARK
AA AD 88	39 10 15	76 38 48	BFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	HAMMOND FY. RD, .9 MILE NW OF G
AA AD 90	39 10 32	76 38 59	BFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	HAMMOND FY. RD, 1.2 MILES NW OF
AA BB 64	39 05 21	76 49 22	BFL	PATUXENT	PATUXENT	2060006	MARYLAND CITY #1, SW CORNER OF
AA BB 66	39 05 31	76 49 14	BFL	PATUXENT	PATUXENT	2060006	MARYLAND CITY #3, .1 MILE SW OF
AA BB 67	39 05 38	76 45 30	BFL	PATUXENT	PATUXENT	2060006	.5 MILE N OF TIPTON AIRFIELD, F
AA BC 163	39 05 24	76 44 25	BFL	PATUXENT	PATUXENT	2060006	.4 MILE NW OF SOLDIER LAKE, FOR
AA BC 171	39 05 25	76 41 42	BFL	WEST CHESAPEAKE	SEVERN	2060004	.8 MILE NE OF ODENTON
AA BC 173	39 05 26	76 41 41	BFL	WEST CHESAPEAKE	SEVERN	2060004	.8 MILE NE OF ODENTON
AA BC 175	39 07 36	76 42 14	BFL	WEST CHESAPEAKE	SEVERN	2060004	MEADE VILLAGE #1, .6 MILE S OF
AA BC 176	39 07 36	76 42 16	BFL	WEST CHESAPEAKE	SEVERN	2060004	MEADE VILLAGE #2, .6 MILE S OF
AA BC 193	39 07 55	76 44 01	BFL	WEST CHESAPEAKE	SEVERN	2060004	.3 MILE NE OF FORT MEADE
AA BC 47	39 05 12	76 41 52	BFL	WEST CHESAPEAKE	SEVERN	2060004	.5 MILE NE OF ODENTON
AA BD 101	39 08 55	76 37 34	BFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	PHILLIP DRIVE, .7 MILE S OF GLE
AA BD 103	39 09 35	76 36 43	BFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	GLENDALE, .5 MILE E OF GLEN BUR
AA BD 105	39 08 10	76 38 07	BFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	CRAIN HIGHWAY, 1.7 MILES S OF G
AA BD 107	39 08 01	76 37 23	BFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	ELVATON ROAD, 1.7 MILES S OF GL
AA BD 108	39 09 17	76 38 14	BFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	THELMA AVENUE, .5 MILES SW OF G
AA BD 109	39 08 45	76 38 58	BFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	QUARTERFIELD RD, 1.4 MILES SW O
AA BD 152	39 08 21	76 36 54	BFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	WOODSIDE SCH, 1.3 MILES S OF GL
AA BD 155	39 09 38	76 38 37	BFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	ST HWY ADMIN., .5 MILE W OF GLE
AA BD 156	39 09 22	76 37 10	BFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	GREENWAY AVE., .2 MILE SW OF GL
AA BD 157	39 09 37	76 37 44	BFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	RIPPLING ELEM SCH, 2.1 MILES S
AA BD 158	39 07 44	76 39 00	BFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	VO TECH SCH, 2.4 MILES SW OF GL
AA BD 159	39 07 37	76 37 44	BFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	RIPPLING ELEM SCH #2, 2.1 MLS S
AA BD 160	39 09 08	76 39 44	BFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	QUEENTOWN PK., 1.7 MILE SW OF G
AA BD 37	39 08 48	76 36 36	BFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	HARUNDALE #2, .5 MILE SW OF HAR
AA BD 55	39 09 51	76 38 42	BFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	DORSEY RD #1, .6 MILE W OF GLEN
AA BD 56	39 09 50	76 38 40	BFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	DORSEY RD #3, .6 MILE W OF GLEN
AA BD 64	39 09 52	76 39 02	BFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	DORSEY RD #11, .9 MILE W OF GLE
AA BD 91	39 09 50	76 39 11	BFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	DORSEY RD 1 MILE W OF GLEN BURN
AA BD 92	39 09 49	76 39 24	BFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	DORSEY RD #14, 1.2 MILES W OF G
AA BD 95	39 09 29	76 39 15	BFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	DORSEY RD #15, 1.1 MILES SW OF
AA BD 97	39 09 21	76 39 32	BFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	DORSEY RD #16, 1.4 MILES SW OF
AA BD 98	39 09 07	76 39 07	BFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	DORSEY RD #17, 1.2 MILES SW OF
AA BD 99	39 06 04	76 35 45	BFL	WEST CHESAPEAKE	SEVERN	2060004	1.4 MILES S OF ELVATON
AA BE 102	39 05 59	76 31 26	BFL	WEST CHESAPEAKE	SEVERN	2060004	2.5 MILES SE OF PASADENA
AA BF 3	39 09 45	76 28 56	BFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	IN FORT SMALLWOOD PARK
AA CB 1	39 03 03	76 46 32	BFL	PATUXENT	PATUXENT	2060006	RANGE RD., SOUTH END OF FT. MEA
AA CC 102	39 00 04	76 42 00	BFL	PATUXENT	PATUXENT	2060006	CROFTON #3, 1.2 MILES E OF CROF
AA CC 103	39 00 57	76 40 37	BFL	PATUXENT	PATUXENT	2060006	CROFTON MEADOWS #2, 2.5 MILES N
AA CC 105	39 01 00	76 40 32	BFL	PATUXENT	PATUXENT	2060006	CROFTON MEADOWS #3, 2.6 MILES N
AA CC 106	39 01 26	76 41 34	BFL	PATUXENT	PATUXENT	2060006	1.8 MILES NE OF CROFTON
AA CC 107	39 00 47	76 40 49	BFL	PATUXENT	PATUXENT	2060006	CROFTON MEADOWS #1, 2.2 MILES N
AA CC 113	39 02 56	76 41 31	BFL	PATUXENT	PATUXENT	2060006	WAUGH CHAPEL RD, 2.5 MILES SW O
AA CC 115	39 01 03	76 40 26	BFL	WEST CHESAPEAKE	SEVERN	2060004	CROFTON MEADOWS, 2.7 MILES NE O
AA CC 116	39 01 03	76 40 26	BFL	WEST CHESAPEAKE	SEVERN	2060004	CROFTON MEADOWS, 2.7 MILES NE O
AA CC 117	39 01 03	76 40 26	BFL	WEST CHESAPEAKE	SEVERN	2060004	CROFTON MEADOWS, 2.7 MILES NE O
AA CC 118	39 04 37	76 43 23	BFL	PATUXENT	PATUXENT	2060006	FT. MEADE, 1 MILE SW OF ODENTON
AA CC 119	39 04 37	76 43 25	BFL	PATUXENT	PATUXENT	2060006	FT. MEADE, 1 MILE SW OF ODENTON
AA CC 40	39 04 23	76 43 20	BFL	PATUXENT	PATUXENT	2060006	PISTOL RANGE, FT. MEADE
AA CC 42	39 04 23	76 41 45	BFL	WEST CHESAPEAKE	SEVERN	2060004	KINGS HEIGHTS, .7 MILE SE OF OD
AA CC 43	39 04 22	76 41 45	BFL	WEST CHESAPEAKE	SEVERN	2060004	KINGS HEIGHTS #2, .7 MILE SE OF
AA CC 79	39 04 22	76 41 48	BFL	WEST CHESAPEAKE	SEVERN	2060004	KINGS HEIGHTS #3, .7 MILE SE OF
AA CC 80	39 04 22	76 41 45	BFL	WEST CHESAPEAKE	SEVERN	2060004	KINGS HEIGHTS, .7 MILE SE OF OD
AA CC 81	39 04 22	76 41 45	BFL	WEST CHESAPEAKE	SEVERN	2060004	KINGS HEIGHTS, .7 MILE SE OF OD
AA CC 82	39 04 22	76 41 45	BFL	WEST CHESAPEAKE	SEVERN	2060004	KINGS HEIGHTS, .7 MILE SE OF OD
AA CC 84	39 01 02	76 42 01	BFL	PATUXENT	PATUXENT	2060006	CROFTON SEW.TR.PLT, 1.5 NE OF C
AA CC 86	39 00 10	76 41 57	BFL	PATUXENT	PATUXENT	2060006	CROFTON #1, 1.2 MILES E OF CROT

SOUTHERN MARYLAND OBSERVATION WELLS (Cont'd)

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
AA CC 87	39 04 22	76 41 48	BFL	WEST CHESAPEAKE	SEVERN	2060004	KINGS HEIGHTS #4, .7 MILE SE OF
AA CC 88	39 04 22	76 41 48	BFL	WEST CHESAPEAKE	SEVERN	2060004	KINGS HEIGHTS #5, .7 MILE SE OF
AA CC 89	39 00 10	76 41 57	BFL	PATUXENT	PATUXENT	2060006	CROFTON #2, 1.2 MILES E OF CROF
AA CC 95	39 02 47	76 40 35	BFL	WEST CHESAPEAKE	SEVERN	2060004	WAUGH CHAPEL RD, 1.8 MILES SW O
AA CD 12	39 01 24	76 36 12	BFL	WEST CHESAPEAKE	SEVERN	2060004	CROWNSVILLE STATE HOSP, .3 MI S
AA CD 48	39 00 01	76 36 43	BFL	WEST CHESAPEAKE	SEVERN	2060004	2 MILES SW OF CROWNSVILLE
AA CD 78	39 02 38	76 37 33	BFL	WEST CHESAPEAKE	SEVERN	2060004	.3 MILE S OF WATERBURY
AA CD 79	39 03 33	76 37 45	BFL	WEST CHESAPEAKE	SEVERN	2060004	AT SEVERN CROSSRDS.
AA CD 80	39 04 11	76 35 45	BFL	WEST CHESAPEAKE	SEVERN	2060004	3 MILES W OF CROWNSVILLE
AA CD 85	39 00 32	76 38 30	BFL	WEST CHESAPEAKE	SEVERN	2060004	2.5 MILES SW OF CROWNSVILLE
AA CD 87	39 02 24	76 38 35	BFL	WEST CHESAPEAKE	SEVERN	2060004	2.4 MILES NW OF CROWNSVILLE
AA CE 102	39 02 14	76 34 31	BFL	WEST CHESAPEAKE	SEVERN	2060004	.7 MILES SW OF HERALD HARBOR
AA CE 103	39 02 14	76 34 22	BFL	WEST CHESAPEAKE	SEVERN	2060004	PALISADES-SEVERN, 1.1 MILES SW
AA CE 105	39 03 10	76 34 07	BFL	WEST CHESAPEAKE	SEVERN	2060004	AT HERALD HABOR
AA CE 106	39 00 49	76 32 27	BFL	WEST CHESAPEAKE	SEVERN	2060004	SAEFERN, .2 MILES W OF EPPING F
AA CE 108	39 00 58	76 32 25	BFL	WEST CHESAPEAKE	SEVERN	2060004	SAEFERN, .3 MILES NW OF EPPING
AA CE 110	39 02 31	76 32 06	BFL	WEST CHESAPEAKE	SEVERN	2060004	1.6 MILES NW OF ARNOLD
AA CE 114	39 01 30	76 31 15	BFL	WEST CHESAPEAKE	SEVERN	2060004	.9 MILE SW OF ARNOLD
AA CE 120	39 03 03	76 34 43	BFL	WEST CHESAPEAKE	SEVERN	2060004	.6 MILE SW OF HERALD HARBOR
AA CE 121	39 04 49	76 34 46	BFL	WEST CHESAPEAKE	SEVERN	2060004	SEVERNDALE #4, 2 MILES NW OF SE
AA CE 123	39 03 03	76 34 43	BFL	WEST CHESAPEAKE	SEVERN	2060004	HERALD HARBOR PW #1, .6 MILES S
AA CE 124	39 03 03	76 34 43	BFL	WEST CHESAPEAKE	SEVERN	2060004	HERALD HARBOR PW #2, .6 MILES S
AA CE 125	39 01 16	76 32 52	BFL	WEST CHESAPEAKE	SEVERN	2060004	SHERWOOD FOREST WTR CO, 3 MILES
AA CE 65	39 04 03	76 32 54	BFL	WEST CHESAPEAKE	SEVERN	2060004	SEVERNA PARK #1, .2 MILE SW OF
AA CE 67	39 04 01	76 33 05	BFL	WEST CHESAPEAKE	SEVERN	2060004	SEVERNA PARK #2, .4 MILE SW OF
AA CE 69	39 01 15	76 33 05	BFL	WEST CHESAPEAKE	SEVERN	2060004	PINES ON SEVERN #1, AT PINES ON
AA CE 70	39 01 15	76 33 05	BFL	WEST CHESAPEAKE	SEVERN	2060004	PINES ON SEVERN #2, AT PINES ON
AA CE 94	39 04 50	76 34 35	BFL	WEST CHESAPEAKE	SEVERN	2060004	SEVERNDALE #1, 1.9 MILES NW OF
AA CE 96	39 04 50	76 34 35	BFL	WEST CHESAPEAKE	SEVERN	2060004	SEVERNDALE #2, 1.9 MILES NW OF
AA CE 97	39 00 44	76 34 53	BFL	WEST CHESAPEAKE	SEVERN	2060004	EISENHOWER GOLF COURSE, 1.4 MI
AA CE 98	39 01 16	76 32 52	BFL	WEST CHESAPEAKE	SEVERN	2060004	SHERWOOD FOREST WATER CO, .3 MI
AA CF 100	39 01 50	76 28 30	BFL	WEST CHESAPEAKE	SEVERN	2060004	.5 MILE NW OF BROADNECK
AA CF 104	39 02 42	76 27 45	BFL	WEST CHESAPEAKE	SEVERN	2060004	.3 MILE W OF CAPE ST.CLAIRE
AA CF 106	39 03 04	76 28 10	BFL	WEST CHESAPEAKE	SEVERN	2060004	SHORE ACRES RD, .7 MILE SW OF S
AA CF 118	39 02 07	76 29 28	BFL	WEST CHESAPEAKE	SEVERN	2060004	ARNOLD #2, .6 MILE E OF ARNOLD
AA CF 119	39 02 03	76 29 28	BFL	WEST CHESAPEAKE	SEVERN	2060004	ARNOLD #1, .6 MILE E OF ARNOLD
AA CF 120	39 02 03	76 29 23	BFL	WEST CHESAPEAKE	SEVERN	2060004	ARNOLD #3, .6 MILE E OF ARNOLD
AA CF 121	39 01 49	76 26 17	BFL	WEST CHESAPEAKE	SEVERN	2060004	1 MILE S OF CAPE ST.CLAIRE
AA CF 122	39 01 49	76 26 17	BFL	WEST CHESAPEAKE	SEVERN	2060004	1 MILE S OF CAPE ST.CLAIRE
AA CF 128	39 02 49	76 26 17	BFL	WEST CHESAPEAKE	SEVERN	2060004	1 MILE S OF CAPE ST.CLAIRE
AA CF 129	39 01 49	76 26 17	BFL	WEST CHESAPEAKE	SEVERN	2060004	1 MILE S OF CAPE ST.CLAIRE
AA CF 130	39 01 08	76 25 35	BFL	WEST CHESAPEAKE	SEVERN	2060004	LIGHTHOUSE LANDING, 1 MILE E OF
AA CF 131	39 01 09	76 24 38	BFL	WEST CHESAPEAKE	SEVERN	2060004	LIGHTHOUSE LANDING, 1 MILE E OF
AA CF 134	39 01 21	76 27 05	BFL	WEST CHESAPEAKE	SEVERN	2060004	AMBERLY, .5 MILE E OF ST MARGAR
AA CF 135	39 01 36	76 27 12	BFL	WEST CHESAPEAKE	SEVERN	2060004	AMBERLY, .4 MILE NE OF ST MARGA
AA CF 38	39 01 50	76 27 00	E	WEST CHESAPEAKE	SEVERN	2060004	ARMY RESERVE, .3 MILES N OF BRO
AA CF 39	39 01 42	76 25 49	BFL	WEST CHESAPEAKE	SEVERN	2060004	USN NIKE SITE, BAY HEAD RD, 1 M
AA CF 64	39 03 21	76 29 46	BFL	WEST CHESAPEAKE	SEVERN	2060004	BELVEDERE HTS #2, 1.5 MILES N O
AA CF 97	39 02 17	76 26 40	BFL	WEST CHESAPEAKE	SEVERN	2060004	CAPE ST. CLAIRE SCHOOL, .4 MI S
AA CF 98	39 01 50	76 28 30	BFL	WEST CHESAPEAKE	SEVERN	2060004	.5 MILE NW OF BROADNECK
AA CF 99	39 01 50	76 28 30	BFL	WEST CHESAPEAKE	SEVERN	2060004	.5 MILE NW OF BROADNECK
AA CG 22	39 01 23	76 24 16	BFL	WEST CHESAPEAKE	SEVERN	2060004	SANDY POINT STATE PARK, 1 MI N
AA CG 23	39 01 23	76 24 16	BFL	WEST CHESAPEAKE	SEVERN	2060004	SANDY POINT STATE PARK, 1 MI N
AA CG 24	39 01 23	76 24 16	BFL	WEST CHESAPEAKE	SEVERN	2060004	SANDY POINT STATE PARK, 1 MI N
AA CG 25	39 01 27	76 24 03	BFL	WEST CHESAPEAKE	SEVERN	2060004	SANDY POINT STATE PARK, 1 MI N
AA CG 8	39 01 25	76 24 05	BFL	WEST CHESAPEAKE	SEVERN	2060004	SANDY POINT STATE PARK, 1 MI N
AA DC 13	38 58 00	76 41 03	BFL	PATUXENT	PATUXENT	2060006	USAF TRANSMIT STATION, 3.5 MILE
AA DC 15	38 59 28	76 41 46	BFL	PATUXENT	PATUXENT	2060006	7-11 STORE, 2.5 MILES SE OF CRO
AA DC 16	38 56 37	76 40 08	BFL	PATUXENT	PATUXENT	2060006	CLIFTON WAYSON, 2.5 MILES NW OF
AA DC 17	38 59 28	76 41 46	BFL	PATUXENT	PATUXENT	2060006	7-11 STORE, RT.450 2.5 MILES SE
AA DD 24	38 57 22	76 38 57	BFL	PATUXENT	PATUXENT	2060006	2.5 MILES NW OF DAVIDSONVILLE
AA DD 37	38 58 07	76 35 19	BFL	WEST CHESAPEAKE	SEVERN	2060004	AT BON HAVEN
AA DD 40	38 55 11	76 37 31	BFL	WEST CHESAPEAKE	SEVERN	2060004	.3 MILE SE OF DAVIDSONVILLE
AA DD 41	38 58 08	76 37 35	BFL	WEST CHESAPEAKE	SEVERN	2060004	RUTLAND ROAD, 3 MILES N OF DAVI
AA DD 42	38 58 08	76 37 35	BFL	WEST CHESAPEAKE	SEVERN	2060004	RUTLAND ROAD, 3 MILES N OF DAVI
AA DD 44	38 58 05	76 36 04	BFL	WEST CHESAPEAKE	SEVERN	2060004	HARBOR HILL, 3.5 MILES NE OF DA
AA DE 1	38 59 15	76 34 03	BFL	WEST CHESAPEAKE	SEVERN	2060004	2.4 MILES W OF ANNAPOLIS

SOUTHERN MARYLAND OBSERVATION WELLS (Cont'd)

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
AA DE 101	38 55 12	76 33 16	BFL	WEST CHESAPEAKE	SEVERN	2060004	.4 MILE N OF COLLISON CORNER
AA DE 102	38 55 12	76 33 16	BFL	WEST CHESAPEAKE	SEVERN	2060004	.4 MILE N OF COLLISON CORNER
AA DE 103	38 55 12	76 33 16	BFL	WEST CHESAPEAKE	SEVERN	2060004	.4 MILE N OF COLLISON CORNOR
AA DE 107	38 57 20	76 30 28	BFL	WEST CHESAPEAKE	SEVERN	2060004	ANNAPOLIS JR. HIGH, 1.2 MILES S
AA DE 113	38 59 29	76 32 49	BFL	WEST CHESAPEAKE	SEVERN	2060004	BESTGATE, 1.4 MILES NW OF ANNAP
AA DE 117	38 57 05	76 34 34	BFL	WEST CHESAPEAKE	SEVERN	2060004	RIVERVIEW RD., RIVA, 3.3 MILES
AA DE 124	38 55 28	76 33 46	BFL	WEST CHESAPEAKE	SEVERN	2060004	CENTRAL AVENUE, 4.3 MILES SW OF
AA DE 125	38 55 26	76 33 48	BFL	WEST CHESAPEAKE	SEVERN	2060004	CENTRAL AVENUE, 4.3 MILES SW OF
AA DE 128	38 55 30	76 33 47	BFL	WEST CHESAPEAKE	SEVERN	2060004	CENTRAL AVENUE, 4.3 MILES SW OF
AA DE 75	38 57 58	76 34 27	BFL	WEST CHESAPEAKE	SEVERN	2060004	BROADVIEW ESTATES, 2.8 MILES NE
AA DE 94	38 59 16	76 33 46	BFL	WEST CHESAPEAKE	SEVERN	2060004	2 MILES W OF ANNAPOLIS
AA DE 95	38 58 53	76 33 30	BFL	WEST CHESAPEAKE	SEVERN	2060004	HARRY TRUMAN PRWAY, 1.8 MILES W
AA DE 99	38 57 20	76 30 28	BFL	WEST CHESAPEAKE	SEVERN	2060004	ANNAPOLIS JR. HIGH, 1.2 MILES S
AA DF 12	38 59 00	76 29 20	BFL	WEST CHESAPEAKE	SEVERN	2060004	US NAVAL ACADEMY, .1 MILE N OF
AA DF 16	38 59 07	76 28 19	BFL	WEST CHESAPEAKE	SEVERN	2060004	.8 MILE NE OF ANNAPOLIS
AA DF 18	38 59 22	76 27 07	BFL	WEST CHESAPEAKE	SEVERN	2060004	US NAVY RADIO STATION, 2 MILES
AA DF 19	38 59 22	76 27 04	BFL	WEST CHESAPEAKE	SEVERN	2060004	US NAVY RADIO STATION, 2 MILES
AA DF 20	38 59 16	76 27 07	BFL	WEST CHESAPEAKE	SEVERN	2060004	US NAVY RADIO STATION, 2 MILES
AA DF 64	38 59 09	76 28 17	BFL	WEST CHESAPEAKE	SEVERN	2060004	.8 MILE NE OF ANNAPOLIS
AA DF 65	38 59 13	76 28 14	BFL	WEST CHESAPEAKE	SEVERN	2060004	.8 MILE NE OF ANNAPOLIS
AA DF 79	38 59 05	76 29 36	BFL	WEST CHESAPEAKE	SEVERN	2060004	U.S. NAVAL ACADEMY, .2 MILE N O
AA DF 80	38 59 05	76 29 36	BFL	WEST CHESAPEAKE	SEVERN	2060004	U.S. NAVAL ACADEMY, .2 MILE N O
AA DF 82	38 59 53	76 28 02	BFL	WEST CHESAPEAKE	SEVERN	2060004	PROVIDENCE, 1.5 MILES NE OF ANN
AA DF 83	38 59 18	76 29 58	BFL	WEST CHESAPEAKE	SEVERN	2060004	U.S. NAVAL ACADEMY #14, .6 MILE
AA DF 84	38 55 18	76 28 27	BFL	WEST CHESAPEAKE	SEVERN	2060004	THOMAS PT, 3.6 MILES SE OF ANNA
AA DF 86	38 55 18	76 28 27	BFL	WEST CHESAPEAKE	SEVERN	2060004	THOMAS PT, 3.6 MILES SE OF ANNA
AA DF 87	38 59 34	76 27 43	BFL	WEST CHESAPEAKE	SEVERN	2060004	NAVY GOLF ASSOC, 1.6 MILES NE O
AA DF 89	38 59 34	76 27 43	BFL	WEST CHESAPEAKE	SEVERN	2060004	NAVY GOLF ASSOC, 1.6 MILES NE O
AA DF 98	38 55 50	76 29 21	BFL	WEST CHESAPEAKE	SEVERN	2060004	HILLSMERE, 2.9 MILES S OF ANNAP
AA EC 5	38 54 32	76 40 14	BFL	PATUXENT	PATUXENT	2060006	LITTLE BIG-E-NUF, 5 MILES SW OF
AA EC 6	38 51 22	76 40 58	BFL	PATUXENT	PATUXENT	2060006	MD MANOR TRAILER PK, .8 MILE NW
AA ED 12	38 51 00	76 35 56	BFL	WEST CHESAPEAKE	SEVERN	2060004	SOUTH CO HEALTH CENTER, .2 MI W
AA ED 39	38 52 10	76 37 10	BFL	PATUXENT	PATUXENT	2060006	SOUTH SR HIGH SCHOOL, .2 MILE N
AA ED 45	38 54 06	76 38 39	BFL	PATUXENT	PATUXENT	2060006	POLICE ACADEMY, 2.8 MILES NW OF
AA ED 49	38 52 49	76 38 21	BFL	PATUXENT	PATUXENT	2060006	1.9 MILES NW OF HARWOOD
AA EE 22	38 52 45	76 32 05	BFL	WEST CHESAPEAKE	SEVERN	2060004	2.9 MILES NW OF HARWOOD
AA EE 65	38 53 06	76 30 15	BFL	WEST CHESAPEAKE	SEVERN	2060004	CHESAPEAKE BAY VIL, .3 MILE N O
AA EE 67	38 51 24	76 32 20	BFL	WEST CHESAPEAKE	SEVERN	2060004	BAYFIELD SUBD, .7 MILE E OFF CU
AA EF 17	38 53 18	76 29 45	BFL	WEST CHESAPEAKE	SEVERN	2060004	.3 MILES W OF SAUNDERS POINT
AA FC 28	38 48 54	76 41 28	BFL	PATUXENT	PATUXENT	2060006	DUNCAN FAMILY CAMPGRND, .6 MI N
AA FD 43	38 46 46	76 35 24	BFL	WEST CHESAPEAKE	SEVERN	2060004	TRACYS LANDING REG PARK, .3 MI
AA FD 46	38 47 27	76 38 25	BFL	PATUXENT	PATUXENT	2060006	CONTEE MANOR, 2.5 MILES NW OF T
AA FD 47	38 48 45	76 38 28	BFL	PATUXENT	PATUXENT	2060006	BROOKS WOODS RD, 3 MILES NW OF
AA FE 46	38 48 40	76 31 28	BFL	WEST CHESAPEAKE	SEVERN	2060004	BROADWATER W W PLT, 2.8 MILES N
AA FE 47	38 48 43	76 31 26	BFL	WEST CHESAPEAKE	SEVERN	2060004	BROADWATER W W PLT, 2.8 MILES N
AA FE 48	38 45 08	76 33 41	BFL	WEST CHESAPEAKE	SEVERN	2060004	FAIRHAVEN RD, 1.8 MILES S OF DE
AA FE 49	38 48 13	76 34 52	BFL	WEST CHESAPEAKE	SEVERN	2060004	NUTWELL RD, 2.2 MILES NW OF DEA
CA BA 11	38 43 57	76 40 16	BFL	PATUXENT	PATUXENT	2060006	YELLOW BANK RD, .8 MILE NW OF D
CA BA 13	38 42 31	76 41 25	BFL	PATUXENT	PATUXENT	2060006	FERRY LANDING RD, 1.8 MILES SW
CA BA 7	38 44 01	76 40 49	BFL	PATUXENT	PATUXENT	2060006	SHORES OF CALVERT, 1.3 MILES NW
CA BA 8	38 44 01	76 40 49	BFL	PATUXENT	PATUXENT	2060006	SHORES OF CALVERT, 1.3 MILES NW
CA BB 10	38 40 28	76 35 42	BFL	PATUXENT	PATUXENT	2060006	MT HOPE SCHOOL, .2 MILE N OF SU
CA BB 11	38 41 52	76 36 16	BFL	PATUXENT	PATUXENT	2060006	MT HARMONY METHODIST CHURCH, AT
CA BB 23	38 44 58	76 37 55	BFL	PATUXENT	PATUXENT	2060006	CAVALIER COUNTRY, 2.4 MILES NE
CA BB 24	38 44 58	76 38 00	BFL	PATUXENT	PATUXENT	2060006	CAVALIER COUNTRY, 2.4 MILES NE
CA BB 25	38 41 09	76 39 11	BFL	PATUXENT	PATUXENT	2060006	NORTHERN SCH, AT CHANEYVILLLE
CA BB 27	38 43 31	76 39 52	BFL	PATUXENT	PATUXENT	2060006	DUNKIRK REG PARK, .3 MILE N OF
CA BB 28	38 43 34	76 39 45	BFL	PATUXENT	PATUXENT	2060006	DUNKIRK REG PARK, .3 MILE N OF
CA BB 33	38 42 22	76 38 01	BFL	PATUXENT	PATUXENT	2060006	MT HARMONY ESTATES, 1 MILE N OF
CA BC 31	38 41 07	76 32 22	BFL	WEST CHESAPEAKE	SEVERN	2060004	.3 MILE W OF CHESAPEAKE BEACH
CA BC 32	38 42 38	76 34 03	BFL	WEST CHESAPEAKE	SEVERN	2060004	2 MILES W OF N BEACH
CA CA 12	38 37 37	76 40 16	BFL	PATUXENT	PATUXENT	2060006	KINGS LANDINC YMCA, 2 MILES S O
CA CB 24	38 39 43	76 39 03	BFL	PATUXENT	PATUXENT	2060006	2 MILES S OF CHANEYVILLE
CA CB 26	38 38 37	76 38 10	BFL	PATUXENT	PATUXENT	2060006	HUNTINGTOWN RD, 2.2 MILES NW OF
CA CB 32	38 36 32	76 39 27	BFL	PATUXENT	PATUXENT	2060006	ROBINSON RD, 2.5 MILES W OF HUN
CA CB 37	38 35 01	76 36 20	BFL	PATUXENT	PATUXENT	2060006	2.3 MILES S OF HUNTINGTOWN
CA CC 18	38 39 30	76 31 43	BFL	WEST CHESAPEAKE	SEVERN	2060004	.5 MILE S OF RANDLE CLIFF BEACH

SOUTHERN MARYLAND OBSERVATION WELLS (Cont'd)

STATION NAME (S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
CA CC 39	38 39 34	76 32 02	BFL	WEST CHESAPEAKE	SEVERN	2060004	.6 MILE S OF RANDLE CLIFF BEACH
CA CC 55	38 39 34	76 32 02	BFL	WEST CHESAPEAKE	SEVERN	2060004	.5 MILE S OF RANDLE CLIFF BEACH
CA CC 56	38 39 34	76 34 46	BFL	PATUXENT	PATUXENT	2060006	.5 MILE S OF RANDLE CLIFF BEACH
CA CC 57	38 36 05	76 34 46	BFL	PATUXENT	PATUXENT	2060006	.3 MILE W OF PARRAN
CA CC 58	38 39 24	76 34 12	BFL	PATUXENT	PATUXENT	2060006	HICKORY HILLS, 2.5 MILES W OF R
CA DB 16	38 33 08	76 39 34	BFL	PATUXENT	PATUXENT	2060006	SCIENTISTS CLIFFS #2, 4 MI W OF
CA DB 40	38 30 53	76 38 21	BFL	PATUXENT	PATUXENT	2060006	CAL CO INDUSTRIAL PARK, 3.5 MI
CA DB 41	38 32 47	76 35 51	BFL	PATUXENT	PATUXENT	2060006	CAL CO PR FRED WATER PLANT, .8
CA DB 43	38 30 27	76 39 46	BFL	PATUXENT	PATUXENT	2060006	HALLOWING POINT, 1 MILE N OF PR
CA DB 47	38 32 39	76 35 42	BFL	PATUXENT	PATUXENT	2060006	.5 MILE NW OF PRINCE FREDERICK
CA DB 55	38 32 13	76 37 03	BFL	PATUXENT	PATUXENT	2060006	STAFFORD RD, 1.7 MILES W OF PRI
CA DC 29	38 30 25	76 30 47	BFL	WEST CHESAPEAKE	SEVERN	2060004	SCIENTISTS CLIFFS #3, .7 MI S O
CA DC 35	38 30 50	76 30 55	BFL	WEST CHESAPEAKE	SEVERN	2060004	SCIENTISTS CLIFFS ASSOC, .3 MI
CA EB 17	38 30 32	76 38 35	BFL	PATUXENT	PATUXENT	2060006	SANDY PT RD, 3.5 MILES SW OF PR
CA ED 18	38 25 43	76 26 05	BFL	WEST CHESAPEAKE	SEVERN	2060004	CAMP CONOY, 4.7 MILES SE OF SAI
CA ED 27	38 25 54	76 26 27	BFL	WEST CHESAPEAKE	SEVERN	2060004	CALVERT CLIFFS PLT, 4.3 MILES S
CA ED 42	38 25 28	76 28 07	BFL	WEST CHESAPEAKE	SEVERN	2060004	CALVERT CLIFFS FARM, 3.8 MILES
CA ED 47	38 25 49	76 26 01	CB-4	CHESBAY	UPPER CHESAPEAKE BAY	2060001	CALVERT CLIFFS POWER PL, 4.3 MI
CA FD 39	38 21 55	76 25 45	BFL	WEST CHESAPEAKE	SEVERN	2060004	CHESAPEAKE RANCH WATER CO, .6 M
CA FD 50	38 21 20	76 25 59	BFL	PATUXENT	PATUXENT	2060006	AT CHERRY HILL
CA FD 51	38 24 08	76 26 04	BFL	WEST CHESAPEAKE	SEVERN	2060004	CAL CLIFFS ST PARK, 1.3 MILES S
CA FD 52	38 23 16	76 28 48	BFL	PATUXENT	PATUXENT	2060006	SOLLERS WHARF RD, 2 MILES SW OF
CA FD 54	38 24 07	76 26 03	BFL	WEST CHESAPEAKE	SEVERN	2060004	CAL CLIFFS ST PARK, 1.2 MILES
CA FD 66	38 24 02	76 26 02	BFL	WEST CHESAPEAKE	SEVERN	2060004	CALVERT CLIFFS PARK #1, 1.2 MIL
CA FD 68	38 21 28	76 27 13	BFL	PATUXENT	PATUXENT	2060006	SOLOMONS ISLAND #1, .7 MILE S O
CA FD 69	38 20 15	76 27 15	BFL	PATUXENT	PATUXENT	2060006	SOLOMONS ISLAND #2, 1.9 MILES S
CA FE 18	38 21 34	76 23 36	BFL	WEST CHESAPEAKE	SEVERN	2060004	COVE POINT, 1.8 MILES S OF COVE
CA FE 19	38 23 16	76 24 32	BFL	WEST CHESAPEAKE	SEVERN	2060004	COVE POINT, 1.5 MILES W OF COVE
CA FE 20	38 23 25	76 24 56	BFL	WEST CHESAPEAKE	SEVERN	2060004	COVE POINT, 1.9 MILES W OF COVE
CA FE 21	38 23 09	76 24 41	BFL	WEST CHESAPEAKE	SEVERN	2060004	COVE POINT, 1.6 MILES W OF COVE
CA FE 22	38 23 18	76 24 24	BFL	WEST CHESAPEAKE	SEVERN	2060004	COVE POINT, 1.5 MILES W OF COVE
CA GD 6	38 19 52	76 27 09	BFL	PATUXENT	PATUXENT	2060006	.8 MILE N OF SOLOMONS ISLAND
CH BC 17	38 35 39	77 09 58	BFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	AT INDIAN HEAD
CH BC 71	38 35 54	77 08 56	BFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	AT INDIAN HEAD
CH BE 17	38 35 02	76 56 51	BFL	POTOMAC	LOWER POTOMAC	2070011	.5 MILE SW OF WHITE PLAINS
CH BE 43	38 38 19	76 55 55	BFL	POTOMAC	LOWER POTOMAC	2070011	1.5 MILES NW OF WALDORF
CH BE 48	38 36 49	76 55 47	BFL	POTOMAC	LOWER POTOMAC	2070011	1.4 MILES SW OF WALDORF
CH BF 101	38 38 53	76 53 26	BFL	POTOMAC	LOWER POTOMAC	2070011	MARTHA WASHINGTON MOTEL, 1.7 MI
CH BF 124	38 37 50	76 54 08	BFL	POTOMAC	LOWER POTOMAC	2070011	.5 MILE NE OF WALDORF
CH BF 128	38 37 22	76 54 40	BFL	POTOMAC	LOWER POTOMAC	2070011	.2 MILE S OF WALDORF
CH BF 132	38 36 43	76 50 52	BFL	POTOMAC	LOWER POTOMAC	2070011	3.4 MILES SE OF WALDORF
CH BF 133	38 36 40	76 54 59	BFL	POTOMAC	LOWER POTOMAC	2070011	ST CHAS CITY, 1 MILE S OF WALDO
CH BF 134	38 37 28	76 53 17	BFL	POTOMAC	LOWER POTOMAC	2070011	JOHN HANSON SCHOOL, 1.1 MILE W
CH BF 135	38 38 14	76 50 03	BFL	POTOMAC	LOWER POTOMAC	2070011	CEDARVILLE PARK, 2.5 MILES SW O
CH BF 143	38 39 18	76 52 22	BFL	POTOMAC	LOWER POTOMAC	2070011	2.9 MILES NE OF WALDORF
CH BF 144	38 39 18	76 51 02	BFL	POTOMAC	LOWER POTOMAC	2070011	PINEFIELD, 3.7 MILES NE OF WALD
CH BF 145	38 35 58	76 52 45	BFL	POTOMAC	LOWER POTOMAC	2070011	PINEY CHURCH, 2.4 MILES SE OF W
CH BF 146	38 35 08	76 54 07	BFL	POTOMAC	LOWER POTOMAC	2070011	ST PAUL, 2.7 MILES S OF WALDORF
CH BF 98	38 37 39	76 54 31	BFL	POTOMAC	LOWER POTOMAC	2070011	WALDORF ELEM SCHOOL, .1 MILE N
CH BG 10	38 37 02	76 47 50	BFL	POTOMAC	LOWER POTOMAC	2070011	MALCOMB SCHOOL, .6 MILE W OF MA
CH BG 11	38 35 36	76 47 36	BFL	POTOMAC	LOWER POTOMAC	2070011	GALLANT GREEN STORE, AT GALLANT
CH CB 7	38 34 22	77 11 46	BFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	1.9 MILES SW OF INDIAN HEAD
CH CE 37	38 32 36	76 56 39	BFL	POTOMAC	LOWER POTOMAC	2070011	LA PLATA WATER TRT PLT, 2 MILES
CH CE 38	38 34 35	76 55 16	BFL	POTOMAC	LOWER POTOMAC	2070011	WHITE PLAINS REG PARK, 1.2 MI S
CH CE 47	38 31 49	76 57 03	BFL	POTOMAC	LOWER POTOMAC	2070011	1.5 MILES E OF LA PLATA
CH CF 29	38 32 19	76 50 35	BFL	POTOMAC	LOWER POTOMAC	2070011	T.C. MARTIN SCHOOL, 1 MILE S OF
CH CF 31	38 33 01	76 53 11	BFL	POTOMAC	LOWER POTOMAC	2070011	2.5 MILES W OF BRYANTOWN
CH CG 20	38 32 51	76 48 00	BFL	POTOMAC	LOWER POTOMAC	2070011	MITCHELL SUPPLY CO, 1.3 MILES N
CH CG 21	38 30 09	76 48 12	BFL	POTOMAC	LOWER POTOMAC	2070011	2.3 MILES SW OF HUGHESVILLE
CH CH 15	38 30 43	76 40 45	BFL	PATUXENT	PATUXENT	2060006	AT BENEDICT
CH DA 18	38 26 54	77 15 25	BFL	POTOMAC	LOWER POTOMAC	2070011	DOUGLAS POINT, 2 MILES W OF NAN
CH DA 19	38 26 58	77 15 25	BFL	POTOMAC	LOWER POTOMAC	2070011	DOUGLAS POINT, 2 MILES W OF NAN
CH DA 20	38 26 54	77 15 27	BFL	POTOMAC	LOWER POTOMAC	2070011	DOUGLAS POINT, 2 MILES W OF NAN
CH DB 8	38 27 38	77 13 00	BFL	POTOMAC	LOWER POTOMAC	2070011	NANJEMOY SCH, .3 MILES N OF NAN
CH DD 33	38 26 07	77 00 26	BFL	POTOMAC	LOWER POTOMAC	2070011	1.8 MILES SW OF FAULKNER
CH DF 17	38 28 00	76 53 03	BFL	POTOMAC	LOWER POTOMAC	2070011	.7 MILE SE OF DENTSVILLE
CH EE 16	38 21 03	76 56 02	BFL	POTOMAC	LOWER POTOMAC	2070011	.2 MILE E OF WAYSIDE

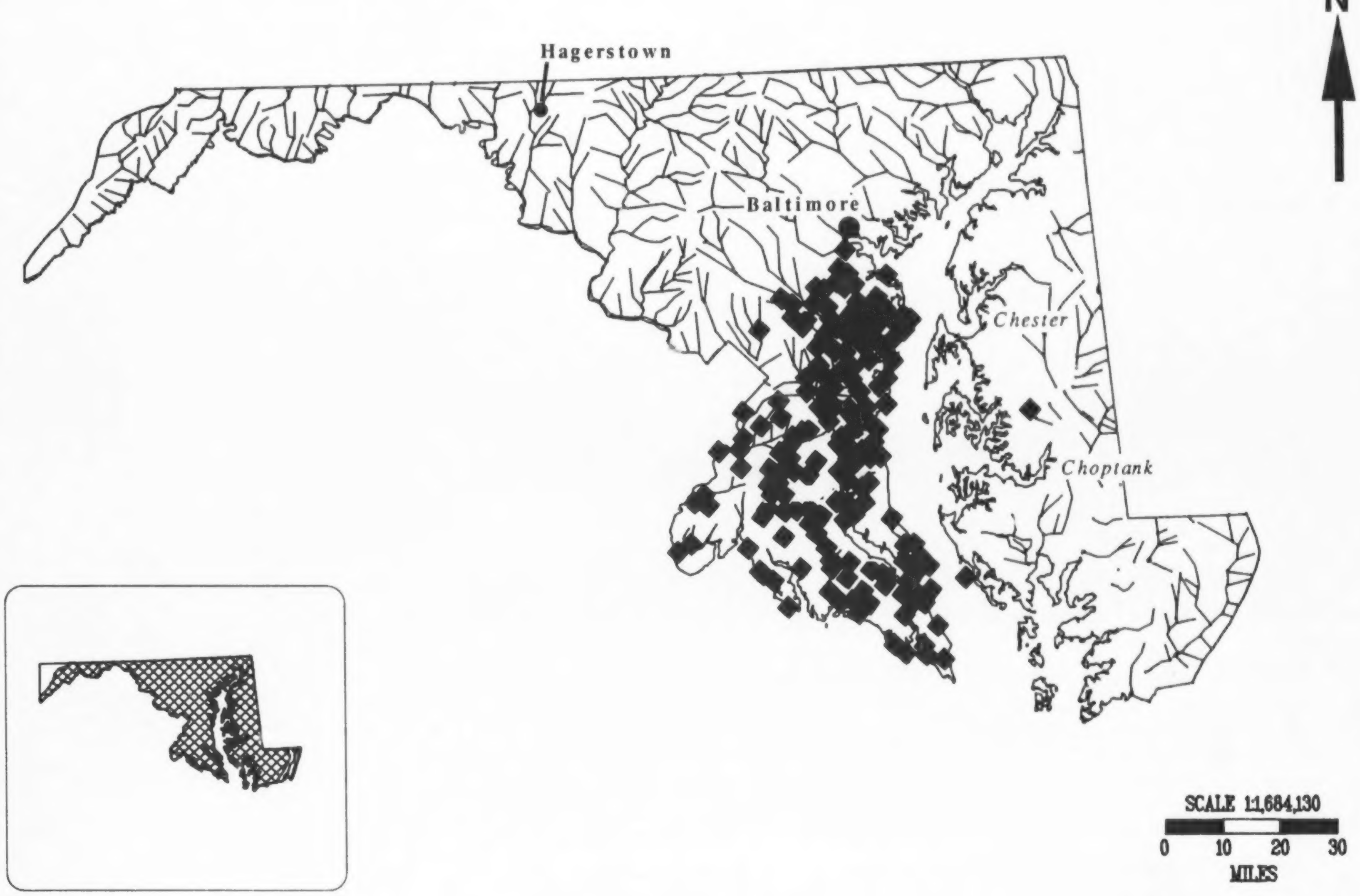
SOUTHERN MARYLAND OBSERVATION WELLS (Cont'd)

STATION NAME (S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
CH EE 70	38 21 54	76 57 48	BFL	POTOMAC	LOWER POTOMAC	2070011	MORGANTOWN PLANT, 1.5 MILES N O
CH EE 78	38 22 40	76 58 28	BFL	POTOMAC	LOWER POTOMAC	2070011	CLIFTON ON THE POTOMAC, 2.2 MI
CH EE 91	38 22 38	76 58 53	BFL	POTOMAC	LOWER POTOMAC	2070011	ST ANNE, 2.5 MILES N OF MORGANT
CH FF 59	38 16 39	76 52 32	BFL	POTOMAC	LOWER POTOMAC	2070011	1.2 MILES S OF ISSUE
PF BC 16	39 01 51	76 56 15	BFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	1.6 MILES W OF BELTSVILLE
PG AD 8	39 06 28	76 51 10	BFL	PATUXENT	PATUXENT	2060006	NORTH END OF LAUREL
PG BE 14	39 02 26	76 48 10	BFL	PATUXENT	PATUXENT	2060006	2.5 MILES NW OF BOWIE
PG BE 15	39 02 53	76 48 28	BFL	PATUXENT	PATUXENT	2060006	3.2 MILES NW OF BOWIE
PG BE 23	39 02 13	76 47 13	BFL	PATUXENT	PATUXENT	2060006	2 MILES N OF BOWIE
PG BE 24	39 02 06	76 47 15	BFL	PATUXENT	PATUXENT	2060006	1.9 MILES N OF BOWIE
PG BE 27	39 01 30	76 47 27	BFL	PATUXENT	PATUXENT	2060006	1.3 MILES NW OF BOWIE
PG BE 8	39 03 15	76 49 01	BFL	PATUXENT	PATUXENT	2060006	3.7 MILES NW OF BOWIE
PG CF 25	38 55 29	76 44 31	BFL	PATUXENT	PATUXENT	2060006	MULLIKIN SCHOOL, .2 MILES S OF
PG CF 30	38 57 57	76 44 04	BFL	PATUXENT	PATUXENT	2060006	3.9 MILES SE OF BOWIE
PG CF 31	38 57 57	76 44 20	BFL	PATUXENT	PATUXENT	2060006	3.8 MILES SE OF BOWIE
PG CF 32	38 58 06	76 43 53	BFL	PATUXENT	PATUXENT	2060006	3.8 MILES SE OF BOWIE
PG CF 33	38 58 06	76 43 53	BFL	PATUXENT	PATUXENT	2060006	3.8 MILES SE OF BOWIE
PG CF 44	38 59 44	76 43 38	BFL	PATUXENT	PATUXENT	2060006	3.7 MILES SE OF BOWIE
PG CF 64	38 58 16	76 43 45	BFL	PATUXENT	PATUXENT	2060006	3.7 MILES SE OF BOWIE
PG CF 66	38 57 45	76 44 52	BFL	PATUXENT	PATUXENT	2060006	3.7 MILES SE OF BOWIE
PG CF 76	38 57 57	76 44 04	BFL	PATUXENT	PATUXENT	2060006	3.9 MILES SE OF BOWIE
PG CF 77	38 57 57	76 44 20	BFL	PATUXENT	PATUXENT	2060006	3.8 MILES SE OF BOWIE
PG DE 21	38 51 30	76 46 55	BFL	PATUXENT	PATUXENT	2060006	1 MILE S OF OAK GROVE
PG DE 32	38 53 23	76 47 18	BFL	PATUXENT	PATUXENT	2060006	WATKINS PARK, 1.1 MILE N OF OAK
PG DE 33	38 53 23	76 47 18	BFL	PATUXENT	PATUXENT	2060006	WATKINS PARK, 1.2 MILES NW OF O
PG DF 2	38 51 52	76 43 13	BFL	PATUXENT	PATUXENT	2060006	1 MILE SE OF LEELAND
PG DF 34	38 50 37	76 43 13	BFL	PATUXENT	PATUXENT	2060006	2.3 MILES NE OF UPPER MARLBORO
PG DF 36	38 50 29	76 43 02	BFL	PATUXENT	PATUXENT	2060006	2.3 MILES NE OF UPPER MARLBORO
PG DF 37	38 53 51	76 43 21	BFL	PATUXENT	PATUXENT	2060006	US 301 & MD 214, .2 MILE W OF K
PG EB 1	38 48 42	77 00 23	BFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	FOREST HEIGHTS #1, 1.8 MI W OF
PG EB 2	38 48 51	77 00 20	BFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	FOREST HEIGHTS #2, 1.8 MI W OF
PG EB 26	38 46 45	76 01 06	BFL	EASTERN SHORE	CHOPTANK	2060005	FORTE FOOTE, 2.4 MILES SE OF AL
PG EC 31	38 46 16	76 57 04	BFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	TAYAC SCHOOL, .2 MILE S OF OAKL
PG ED 34	38 49 33	76 53 00	BFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	MORNINGSIDE VILLAGE WATER CO, S
PG ED 50	38 47 15	76 52 20	BFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	ANDREWS AIR FORCE BASE, N END O
PG EF 34	38 46 23	76 42 40	BFL	PATUXENT	PATUXENT	2060006	MT CALVERT REG PK, .8 MILE S OF
PG EF 40	38 48 47	76 44 04	BFL	PATUXENT	PATUXENT	2060006	.8 MILES SE OF UPPER MARLBORO
PG FB 13	38 42 36	77 01 29	BFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	FT WASHINGTION PK, 2.3 MILES E
PG FB 36	38 44 23	77 00 43	BFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	BROADWATER ESTATES, .8 MILE SW
PG FC 17	38 42 30	76 65 55	BFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	WASHINGTON GAS LIGHT CO, 2.9 MI
PG FD 32	38 41 48	76 51 09	BFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	BRANDYWINE SCHOOL, .2 MILE WEST
PG FD 39	38 44 10	76 50 25	BFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	CHELTENHAM BOYS SCHOOL, .7 MILE
PG FD 41	38 41 31	76 53 33	BFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	LAKE RUTH, 1 MILE SW OF TB
PG FD 62	38 43 09	76 51 14	BFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	BRANDYWINE SAND & GRAVEL, 1.8 M
PG FE 30	38 44 53	76 48 21	BFL	PATUXENT	PATUXENT	2060006	MATTAPONI ELEM SCHOOL, .5 MILE
PG FE 36	38 44 45	76 47 14	BFL	PATUXENT	PATUXENT	2060006	DULEY STATION RD, .7 MILE SE OF
PG GB 2	38 39 43	77 01 46	BFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	DALE GLEN ESTATES, .5 MILE S OF
PG GD 3	38 39 49	76 52 00	BFL	POTOMAC	LOWER POTOMAC	2070011	CEDARVILLE RD, 3.3 MILE NE OF W
PG GE 15	38 39 40	76 46 13	BFL	PATUXENT	PATUXENT	2060006	BADEN ELEM SCHOOL, .4 MILE NE O
PG GF 35	38 38 32	76 41 47	BFL	PATUXENT	PATUXENT	2060006	MAGRUDER FERRY RD, AT MAGRUDER
PG HF 31	38 32 50	76 40 53	BFL	PATUXENT	PATUXENT	2060006	CHALK POINT, 1.4 MILES S OF EAG
PG HF 32	38 32 50	76 40 53	BFL	PATUXENT	PATUXENT	2060006	CHALK POINT, 1.4 MILES S OF EAG
PG HF 33	38 32 50	76 40 53	BFL	PATUXENT	PATUXENT	2060006	CHALK POINT PW 5, 1.4 MILES S O
PG HF 35	38 32 28	76 41 06	BFL	PATUXENT	PATUXENT	2060006	CHALK POINT, 1.8 MILES S OF EAG
PG HF 36	38 32 48	76 40 53	BFL	PATUXENT	PATUXENT	2060006	CHALK POINT PW 6A, 1.6 MILES S
PG HF 38	38 32 47	76 40 53	BFL	PATUXENT	PATUXENT	2060006	CHALK POINT PW 6B, 1.6 MILES S
PG HF 40	38 33 48	76 41 13	BFL	PATUXENT	PATUXENT	2060006	CHALK POINT, .4 MILE S OF EAGLE
PG HF 41	38 33 48	76 41 13	BFL	PATUXENT	PATUXENT	2060006	CHALK POINT, .4 MILE S OF EAGLE
PG HF 42	38 33 48	76 41 13	BFL	PATUXENT	PATUXENT	2060006	CHALK POINT, .4 MILE S OF EAGLE
PG HF 44	38 32 50	76 40 53	BFL	PATUXENT	PATUXENT	2060006	CHALK POINT, 1.4 MILES S OF EAG
SM BB 15	38 28 38	76 47 01	BFL	POTOMAC	LOWER POTOMAC	2070011	VETERANS HOME AT CHARLOTTE HALL
SM BB 22	38 28 38	76 47 01	BFL	POTOMAC	LOWER POTOMAC	2070011	VETERANS HOME AT CHARLOTTE HALL
SM BC 26	38 26 02	76 45 00	BFL	POTOMAC	LOWER POTOMAC	2070011	MECHANICSVILLE MOOSE LODGE, .9
SM CA 6	38 22 48	76 50 01	BFL	POTOMAC	LOWER POTOMAC	2070011	DAVIS RD, 1.6 MILES S OF BUDDS
SM CC 13	38 24 00	76 44 42	BFL	POTOMAC	LOWER POTOMAC	2070011	BAPTIST CHURCH RD, 1.7 MILES NW
SM CC 18	38 23 20	76 40 06	BFL	PATUXENT	PATUXENT	2060006	1.5 MILES NE OF MORGANZA
SM CC 22	38 20 55	76 40 46	BFL	POTOMAC	LOWER POTOMAC	2070011	.9 MILE S OF LOVEVILLE

SOUTHERN MARYLAND OBSERVATION WELLS (Cont'd)

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
SM CC 8	38 22 35	76 43 58	BFL	POTOMAC	LOWER POTOMAC	2070011	C. SPALDING ELEM SCHOOL, .8 MIL
SM CD 28	38 21 35	76 35 20	BFL	PATUXENT	PATUXENT	2060006	SO MD WOOD TRTMNT PLANT, 1.3 MI
SM CE 34	38 21 05	76 33 39	BFL	PATUXENT	PATUXENT	2060006	FENWICK MNR, .8 MILE NE OF HOLL
SM DC 42	38 16 48	76 42 18	BFL	POTOMAC	LOWER POTOMAC	2070011	ST CLEMENTS SHORE #2, AT CLEMEN
SM DC 58	38 16 46	76 42 19	BFL	POTOMAC	LOWER POTOMAC	2070011	ST CLEMENTS SHORE #3, AT CLEMEN
SM DC 59	38 18 07	76 44 28	BFL	POTOMAC	LOWER POTOMAC	2070011	MOUNT PLEASANT WATER CO, .6 MIL
SM DD 1	38 17 45	76 38 12	BFL	POTOMAC	LOWER POTOMAC	2070011	CHURCH RD, .2 MILE N OF LEONARD
SM DD 39	38 18 34	76 38 13	BFL	POTOMAC	LOWER POTOMAC	2070011	GREENBRIAR RD, 1.2 MILE N OF LE
SM DD 44	38 19 43	76 15 57	CB-5	CHESBAY	UPPER CHESAPEAKE BAY	2060001	CHERRY COVE WATER CO #2, 2.3 MI
SM DD 46	38 16 16	76 36 47	BFL	POTOMAC	LOWER POTOMAC	2070011	LEONARDTOWN SR HS, 1.9 MI SE OF
SM DD 47	38 15 37	76 38 46	BFL	POTOMAC	LOWER POTOMAC	2070011	MARGARITAVILLE, ABELLS WHARF, 2
SM DD 49	38 16 16	76 36 47	BFL	POTOMAC	LOWER POTOMAC	2070011	LEONARDTOWN SR HS, 1.9 MI SE OF
SM DD 50	38 18 07	76 38 00	BFL	POTOMAC	LOWER POTOMAC	2070011	LEONARD HALL, .7 MILE N OF LEON
SM DD 51	38 16 54	76 39 45	BFL	POTOMAC	LOWER POTOMAC	2070011	ARMSTRONG DRIVE, 1.6 MILE SW OF
SM DD 62	38 16 16	76 36 47	BFL	POTOMAC	LOWER POTOMAC	2070011	LEONARDTOWN SR HS, 1.9 MI SE OF
SM DD 63	38 16 15	76 36 47	BFL	POTOMAC	LOWER POTOMAC	2070011	LEONARDTOWN SR HS, 1.9 MI SE OF
SM DE 41	38 19 08	76 33 17	BFL	POTOMAC	LOWER POTOMAC	2070011	2.8 MILES NW OF CALIFORNIA
SM DF 1	38 15 52	76 26 50	BFL	PATUXENT	PATUXENT	2060006	PATUXENT NAV AIR STA, .3 MI E O
SM DF 12	38 17 24	76 25 40	BFL	PATUXENT	PATUXENT	2060006	PATUXENT NAV AIR STA 5B, 2.2 MI
SM DF 13	38 17 26	76 26 35	BFL	PATUXENT	PATUXENT	2060006	PATUXENT NAV AIR STA 2P, 1.5 MI
SM DF 22	38 15 48	76 27 21	BFL	PATUXENT	PATUXENT	2060006	BANK SQUARE AT LEXINGTON PARK
SM DF 26	38 17 33	76 29 39	BFL	PATUXENT	PATUXENT	2060006	.7 MILE SE OF CALIFORNIA
SM DF 3	38 16 15	76 27 02	BFL	PATUXENT	PATUXENT	2060006	PATUXENT NAV AIR STA 3A, .3 MI
SM DF 4	38 16 20	76 26 30	BFL	PATUXENT	PATUXENT	2060006	PATUXENT NAV AIR STA 5A, .8 MI
SM DF 43	38 16 47	76 25 25	BFL	PATUXENT	PATUXENT	2060006	PATUXENT NAV AIR STA 6B, 1.9 MI
SM DF 5	38 16 37	76 27 05	BFL	PATUXENT	PATUXENT	2060006	PATUXENT NAV AIR STA 4A, .8 MI
SM DF 61	38 16 04	76 27 17	BFL	PATUXENT	PATUXENT	2060006	PATUXENT NAV AIR STA 2A, .1 MI
SM DF 62	38 16 32	76 27 53	BFL	PATUXENT	PATUXENT	2060006	1 MILE NW OF LEXINGTON PARK
SM DF 66	38 18 41	76 28 44	BFL	PATUXENT	PATUXENT	2060006	1.7 MILES NE OF CALIFORNIA
SM DF 7	38 16 37	76 25 59	BFL	PATUXENT	PATUXENT	2060006	PATUXENT NAV AIR STA 1B, .3 MI
SM DF 71	38 15 27	76 28 31	BFL	POTOMAC	LOWER POTOMAC	2070011	GREAT MILLS RD, 1.4 MI SW OF LE
SM DF 80	38 15 32	76 25 01	BFL	PATUXENT	PATUXENT	2060006	2 MILES E OF LEXINGTON PARK
SM DF 84	38 15 48	76 27 21	BFL	PATUXENT	PATUXENT	2060006	ROSES AT LEXINGTON PARK
SM DG 1	38 16 08	76 24 25	BFL	PATUXENT	PATUXENT	2060006	PATUXENT NAV AIR STA 1C, 2.6 MI
SM DG 10	38 15 55	76 24 48	BFL	PATUXENT	PATUXENT	2060006	2.2 MILES E OF LEXINGTON PARK
SM DG 2	38 16 04	76 24 06	BFL	PATUXENT	PATUXENT	2060006	PATUXENT NAV AIR STA 2C, 2.8 MI
SM DG 3	38 16 22	76 23 54	BFL	PATUXENT	PATUXENT	2060006	PATUXENT NAV AIR STA 3C, 3 MI E
SM DG 5	38 18 05	76 22 57	BFL	PATUXENT	PATUXENT	2060006	PATUXENT NAV AIR STA 2Q, 4.2 MI
SM DG 6	38 18 12	76 23 31	BFL	PATUXENT	PATUXENT	2060006	PATUXENT NAV AIR STA 1Q, 3.5 MI
SM EF 57	38 14 35	76 29 18	BFL	POTOMAC	LOWER POTOMAC	2070011	GREAT MILLS FIRE TOWER, .4 MI N
SM EF 69	38 14 37	76 29 28	BFL	POTOMAC	LOWER POTOMAC	2070011	FISHER RD, .4 MI E OF ST MARY'S
SM EG 27	38 12 13	76 22 28	BFL	PATUXENT	PATUXENT	2060006	1.2 MILES E OF ST JAMES
SM EG 28	38 12 13	76 22 28	BFL	PATUXENT	PATUXENT	2060006	1.2 MILES E OF ST JAMES
SM FE 30	38 08 34	76 30 34	BFL	POTOMAC	LOWER POTOMAC	2070011	WATER TOWER AT PINEY POINT
SM FE 31	38 08 34	76 30 34	BFL	POTOMAC	LOWER POTOMAC	2070011	WATER TOWER AT PINEY POINT
SM FE 36	38 09 13	76 31 43	BFL	POTOMAC	LOWER POTOMAC	2070011	STUART PETROLEUM #6, 1.3 MILES
SM FF 21	38 08 54	76 26 12	LE-2	POTOMAC	LOWER POTOMAC	2070011	2.4 MILES W OF ST INIGOES
SM FF 36	38 07 23	76 25 20	BFL	POTOMAC	LOWER POTOMAC	2070011	KITTS POINT UTILITY CO, 2.4 MI
SM FF 38	38 09 15	76 25 12	BFL	POTOMAC	LOWER POTOMAC	2070011	GRAIPON RD, 1.8 MILES NW OF ST
SM FG 45	38 07 11	76 22 22	BFL	POTOMAC	LOWER POTOMAC	2070011	RIDGE VOLUNTEER FIRE DEPARTMENT

SOUTHERN MARYLAND OBSERVATION WELLS



DELAWARE OBSERVATION WELL NETWORK

PROGRAM DESCRIPTION: The Delaware Observation Well Network, monitored in cooperation between the Delaware Geological Survey and the U.S. Geological Survey, contains five wells within the Chesapeake Bay basin and 74 wells throughout the state. These wells are constructed in water table and artesian aquifers. Groundwater levels are monitored every 4 - 6 weeks.

PROGRAM OBJECTIVES: To characterize present conditions and long-term trends (both natural and man-induced) in groundwater levels, and to provide background water level data which are used to support detailed investigations of groundwater systems.

DATE INITIATED: 1957 (or later depending on well)

COORDINATING AGENCY:

U.S. Geological Survey
Mid-Atlantic District
Water Resources Division
300 South New Street
Federal Building, Room 1201
Dover, Delaware 19901

FUNDING AGENCY: U.S. Geological Survey

PARTICIPATING AGENCIES:

Delaware Geological Survey (DGS)
U.S. Geological Survey Dover (USGS-Dover)

INVESTIGATORS:

Project Director	Robert Simmons	USGS-Dover

PARAMETERS:

Water Level

STATIONS: There are five wells located in the Delaware portion of the Chesapeake Bay basin.

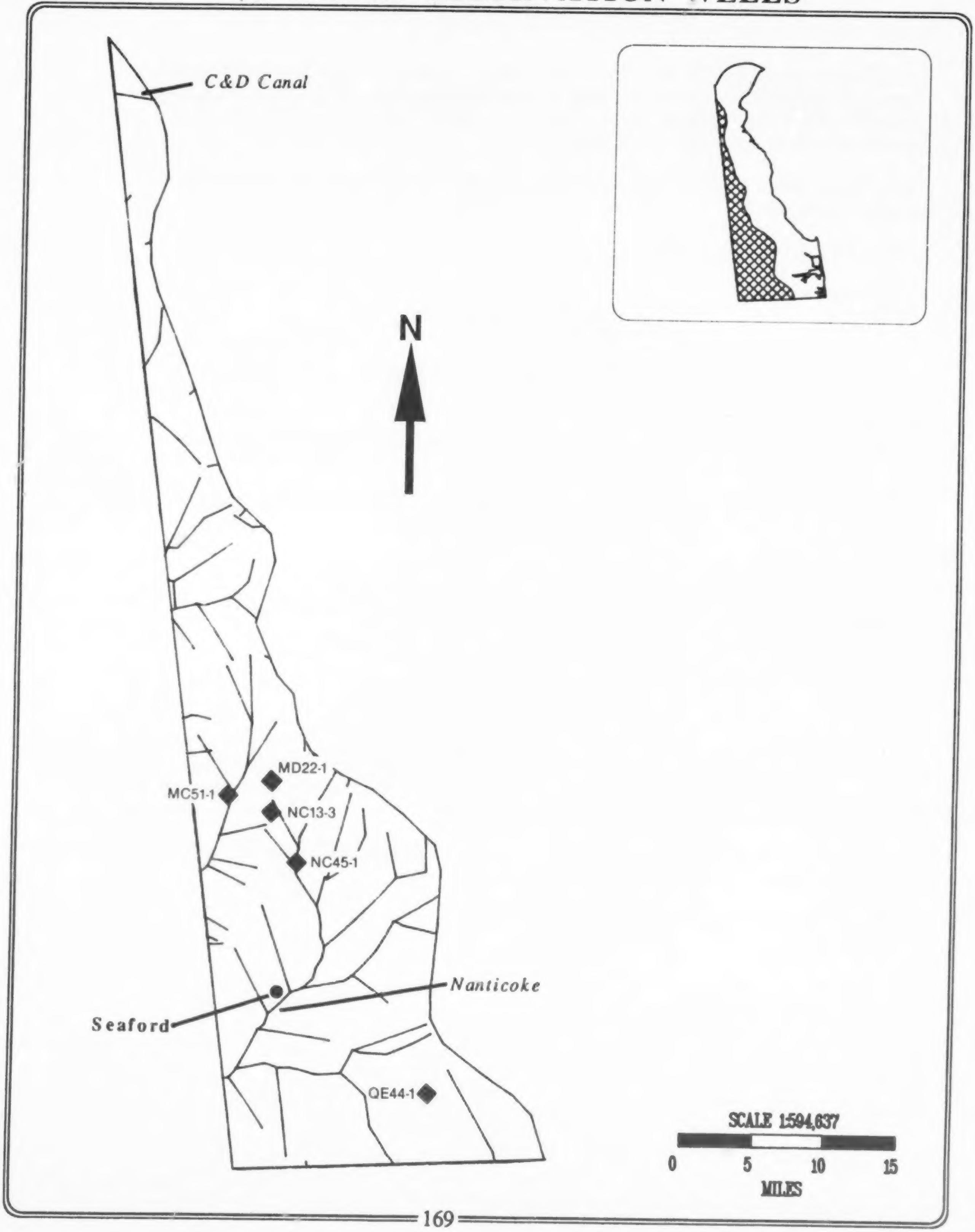
SAMPLE COLLECTION: Each well is visited by either USGS or DGS every 30-42 days. Chalked tape measurements are taken at this time at four of these stations. The remaining well is equipped with a digital recorder that registers the water level every 60 minutes.

PROGRAM INTEGRATION: This network is part of a nationwide observation well network.

DELAWARE OBERVATION WELLS

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
MC51-1	38 50 41	75 39 56	BFL	EASTERN SHORE	NANTICOKE		
MD22-1	38 52 07	75 37 22	BFL	EASTERN SHORE	NANTICOKE	2060008	KENT COUNTY, 1.3 MILES NE OF AD
NC13-3	38 49 30	75 37 02	BFL	EASTERN SHORE	NANTICOKE	2060008	KENT COUNTY, 2.4 MILES W OF WIL
NC45-1	38 46 39	75 35 31	BFL	EASTERN SHORE	NANTICOKE	2060008	SUSSEX COUNTY, 2 MILES NW OF GR
QE44-1	38 31 38	75 26 02	BFL	EASTERN SHORE	NANTICOKE	2060008	SUSSEX COUNTY, 2 MILES S OF GRE
						2060008	SUSSEX COUNTY,1 MILE E OF WHALE

DELAWARE OBSERVATION WELLS



UPPER CHESTER WATERSHED GROUNDWATER MONITORING PROGRAM

PROGRAM DESCRIPTION: The Upper Chester Watershed Groundwater Monitoring Program is designed to measure groundwater level and the effects of agricultural practices on groundwater level in the Upper Chester River Watershed. Through it, approximately 100 groundwater wells are monitored monthly.

PROGRAM OBJECTIVE: To observe seasonal fluctuation and longer term trends in groundwater levels.

DATE INITIATED: 1986

COORDINATING AGENCY:

U.S. Department of Agriculture
Soil Conservation Service
Treadway Towers
9 East Loockerman Street, Suite 207
Dover, Delaware 19901

FUNDING AGENCY: U.S. Department of Agriculture, Soil Conservation Service

PARTICIPATING AGENCY:

U.S. Department of Agriculture, Soil Conservation Service (SCS)
Kent Conservation District (KCD)

INVESTIGATORS:

Principal Investigator	Richard Hall	SCS

PARAMETERS:

Water Level

STATIONS: There are approximately 100 sites located in the Upper Chester River Watershed. Six to 12 sites are located at each of 19 stations (13 in Delaware and six in Maryland). Each of the 13 Delaware stations is indicated on the accompanying list. The Maryland stations (also with 6-12 sites around them) are denoted by one set of coordinates.

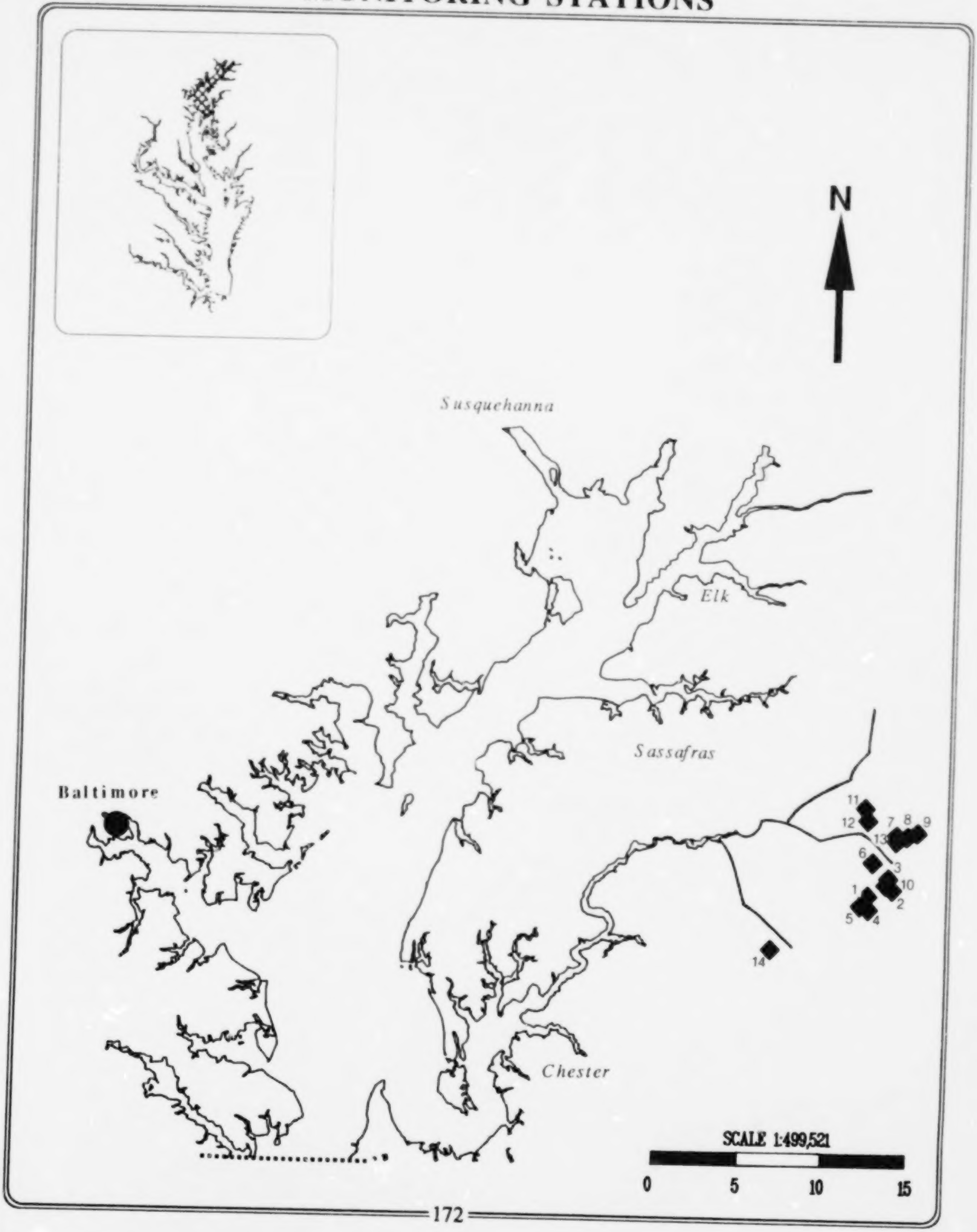
SAMPLE COLLECTION: Monthly readings are taken using a dip stick and measuring tape, and are then plotted on a graph.

PROGRAM INTEGRATION: N/A

UPPER CHESTER RIVER GROUND WATER MONITORING STATIONS

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
1-6-MD	39 08 43	75 51 41	BFL	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	1-2 MILES W OF BARCAY
1-DE	39 11 22	75 44 47	BFL	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	2 MILES NW OF HARTLY STATE HIGH
10-DE	39 11 49	75 43 29	BFL	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	1.5 MILES N OF HARTLY N OF ROAD
11-DE	39 16 17	75 44 41	BFL	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	2.5 MILES W OF BLACKISTON W OF
12-DE	39 15 47	75 44 34	BFL	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	2.5 MILES W OF BLACKISTON W OF
13-DE	39 14 37	75 42 12	BFL	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	2 MILES W OF UNDERWOOD CORNER N
2-DE	39 11 41	75 43 19	BFL	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	1.25 MILES N OF HARTLY, M OF RO
3-DE	39 12 17	75 43 20	BFL	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	.75 MILE SW OF DOWNS CHAPEL
4-DE	39 10 35	75 44 46	BFL	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	1.75 MILES NW OF HARTLY, N OF R
5-DE	39 10 43	75 44 54	BFL	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	2 MILES NW OF HARTLY, E OF ROAD
6-DE	39 13 12	75 44 27	BFL	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	1 MILE SE OF PEARSONS GRAVE, W
7-DE	39 14 53	75 42 06	BFL	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	1.75 MILES OF BLACKISTON, S OF
8-DE	39 14 45	75 41 28	BFL	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	.25 MILE NW OF UNDERWOOD CRNR W
9-DE	39 14 57	75 40 54	BFL	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	.25 MILE N OF UNDERWOOD CORNER

UPPER CHESTER RIVER GROUNDWATER MONITORING STATIONS



VIRGINIA OBSERVATION WELL NETWORK

PROGRAM DESCRIPTION: The Virginia Observation Well Network contains 139 wells within the Chesapeake Bay basin which are monitored either on a continuous, weekly, bimonthly, monthly or quarterly basis. This network is designed to provide a long-term data base to determine the general response of the hydrologic system to natural climate variations and induced stresses. This information will be used to support proper planning and management. Water quality monitoring may be performed from time to time but not on a regular basis.

PROGRAM OBJECTIVES: To provide a long-term data base to help with the analysis of the short-term records acquired in areal studies. To measure the effect of long-term ground water withdrawals on land subsidence.

DATE INITIATED: 1966

COORDINATING AGENCY:

U.S. Geological Survey
Mid-Atlantic District
Water Resources Division
3600 West Broad Street
Richmond, Virginia 23230

FUNDING AGENCIES:

U.S. Geological Survey
Virginia Water Control Board

PARTICIPATING AGENCIES:

U.S. Geological Survey-Richmond (USGS-Richmond)
Virginia Water Control Board (VWCB)

INVESTIGATORS:

Project Chief	Jerry Larson	USGS-Richmond
Co-Investigator	David Nelms	USGS-Richmond
Co-Investigator	Joel Guyer	USGS-Richmond
Co-Investigator	Jack Easton	VWCB
Co-Investigator	Terry Wagner	VWCB
Co-Investigator	Eugene Powell	VWCB

PARAMETERS:

Water Level

STATIONS: There are 139 stations located throughout Virginia within the Chesapeake Bay basin.

SAMPLE COLLECTION: Most wells are measured on a weekly, bimonthly, monthly or quarterly basis by chalked tape. Selected wells are continuously monitored.

PROGRAM INTEGRATION: This network is part of a nationwide observation well network.

VIRGINIA OBSERVATION WELLS

STATION NAME (S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
35K 1	37 37 58	79 27 16	AFL	JAMES	UPPER JAMES	2080201	ROCKBRIDGE CO.IN TOWN GLASGOW
38P 1	38 07 48	79 04 07	AFL	POTOMAC	SOUTH FORK SHENANDOAH	2070005	AUGUSTA CO. AT STAUNTON CITY LI
39K 1	37 42 24	78 55 56	AFL	JAMES	MIDDLE JAMES-BUFFALO	2080203	NELSON CO. IN CO.LLEN
40G 1	37 21 33	78 49 37	AFL	JAMES	APPOMATTOX	2080207	APPOMATTOX CO. IN TOWN OF APPOM
40Q 1	38 15 27	78 49 35	AFL	POTOMAC	SOUTH FORK SHENANDOAH	2070005	AUGUSTA CO. AT REYNOLDS METAL P
41H 1	37 25 41	78 39 21	AFL	JAMES	APPOMATTOX	2080207	BUCKINGHAM CO. 2.6 MI SOUTHEAST
41H 2	37 25 14	78 39 43	AFL	JAMES	APPOMATTOX	2080207	APPOMATTOX CO. 2.8 MI SOUTHEAST
41H 3	37 26 08	78 40 46	AFL	JAMES	APPOMATTOX	2080207	BUCKINGHAM CO. 1.5 MI SOUTH OF
41H 4	37 25 19	78 37 40	AFL	JAMES	APPOMATTOX	2080207	BUCKINGHAM CO. 4.0 MI SOUTHEAST
41Q 1	38 21 50	78 42 40	AFL	POTOMAC	SOUTH FORK SHENANDOAH	2070005	ROCKINGHAM CO. 1.3 MI SE MCGAHE
43N 1	38 03 33	78 26 48	AFL	JAMES	RIVANNA	2080204	ALBEMARLE CO. 1.1 MI EAST CHARL
45N 1	38 02 17	78 13 43	AFL	JAMES	RIVANNA	2080204	LOUISA CO. 3 MI SOUTHEAST BOSWE
45N 4	38 00 45	78 11 14	AFL	YORK	PAMUNKEY	2080106	LOUISA CO. 4.1 MI SOUTH BOSWELL
45P 1	38 10 02	78 09 42	AFL	YORK	PAMUNKEY	2080106	ORANGE CO. 2.3 MI NORTH OF GORD
46N 1	38 01 31	78 00 10	AFL	YORK	PAMUNKEY	2080106	LOUISA CO. IN THE TOWN OF LOUIS
46W 175	39 03 48	78 03 55	AFL	POTOMAC	SHENANDOAH	2070007	CALRK CO. AT BLANDY FARM
47H 1	37 27 09	77 58 58	AFL	JAMES	APPOMATTOX	2080207	AMELIA CO. 5.5 MI NORTH OF AMEL
49U 1	38 49 30	77 42 08	AFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	PR. WILLIAM CO. 3.7 MI WEST HAY
49V 1	38 56 07	77 38 11	AFL	POTOMAC	MIDDLE POTOMAC CATOCTIN	2070008	PR. WILLIAM CO. 2.8 MI SOUTH OF
49Y 1	39 15 42	77 42 38	AFL	POTOMAC	MIDDLE POTOMAC CATOCTIN	2070008	LOUDOUN CO. 4.2 MI SOUTHEAST OF
50J 1	37 36 07	77 33 14	AFL	JAMES	MIDDLE JAMES-WILLIS	2080205	HENRICO. CO. ON THREE CHOPT RD.
50W 4	39 06 23	77 31 42	AFL	POTOMAC	MIDDLE POTOMAC CATOCTIN	2070008	LOUDOUN CO. 0.75 MI EAST OF LEE
51G 1	37 16 44	77 24 46	AFL	JAMES	APPOMATTOX	2080207	CITY OF CO.L. HEIGHTS
51H 132	37 29 20	77 24 10	BFL	JAMES	LOWER JAMES	2080206	HENRICO CO. 1.7 MI NORTHWEST OF
51J 13	37 34 28	77 23 30	BFL	JAMES	LOWER JAMES	2080206	HENRICO CO. AT INT REYNOLDS RD
51K 14	37 38 17	77 28 25	AFL	JAMES	LOWER JAMES	2080206	HENRICO CO. AT J. SARGENT AT RE
51S 7	38 34 23	77 24 59	AFL	POTOMAC	LOWER POTOMAC	2070011	PR. WILLIAM CO 4.6 MI S INDEPEN
52G 1	37 17 01	77 16 42	BFL	JAMES	LOWER JAMES	2080206	CITY OF HOPEWELL IN THE CITY OF
52G 15	37 17 27	77 16 04	BFL	JAMES	LOWER JAMES	2080206	CITY OF HOPEWELL IN THE CITY OF
52G 16	37 17 27	77 16 04	BFL	JAMES	LOWER JAMES	2080206	CITY OF HOPEWELL IN THE CITY OF
52H 2	37 25 42	77 22 00	BFL	JAMES	LOWER JAMES	2080206	HENRICO CO. AT FT HARRISON NAT
52J 1	37 33 01	77 19 40	BFL	JAMES	LOWER JAMES	2080206	HENRICO CO. IN HIGHLAND SPRINGS
52J 34	37 31 25	77 16 37	BFL	JAMES	LOWER JAMES	2080206	HENRICO CO. ON WILSON WAY ROAD
52J 35	37 31 17	77 21 02	BFL	JAMES	LOWER JAMES	2080206	HENRICO CO. IN VIRGINIA HEIGHTS
52N 1	38 02 49	77 18 29	BFL	YORK	MATTAPONI	2080105	CARLOINE CO. AT FT.A.P. HILL OL
52N 5	38 06 24	77 17 28	BFL	YORK	MATTAPONI	2080105	CARLOINE CO. AT FT.A.P. HILL CA
52N 6	38 04 15	77 19 41	BFL	YORK	MATTAPONI	2080105	CARLOINE CO. AT FT.A.P. HILL OL
52S 4	38 36 34	77 15 13	BFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	PR. WILLIAM CO. 6.2 MI NORTHEAS
52S 5	38 36 34	77 15 13	BFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	PR. WILLIAM CO. 6.2 MI NORTHEAS
52T 2	38 38 30	77 13 55	BFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	PR. WILLIAM CO. AT U.S. ARMY S
52U 4	38 45 18	77 16 35	AFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	FAIRFAX CO. AT SYDENSTRICKER CH
52V 2	38 56 58	77 22 01	AFL	POTOMAC	MIDDLE POTOMAC CATOCTIN	2070008	FAIRFAX CO. AT USGS NATL., CENT
53H 4	37 29 11	77 14 07	BFL	JAMES	LOWER JAMES	2080206	HENRICO CO. 1.5 MI NORTHWEST OF
53K 9	37 41 18	77 10 43	BFL	YORK	PAMUNKEY	2080106	KG. WILLIAM CO. 2.0 MI SOUTHWES
53V 1	38 53 46	77 07 37	AFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	ARLINGTON CO. AT LANGSTON SCHOO
54G 11	37 19 56	77 05 52	BFL	JAMES	LOWER JAMES	2080206	CHARLES CITY CO. 1.6 MI WEST OF
54G 13	37 19 56	77 05 51	BFL	JAMES	LOWER JAMES	2080206	CHARLES CITY CO. 1.6 MI WEST OF
54K 6	37 43 28	77 01 28	BFL	YORK	MATTAPONI	2080105	KING & QUEEN CO. AT WALKERTON N
54V 3	38 52 53	77 04 23	BFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	ARLINGTON CO. AT ARLINGTON NATL
55H 1	37 24 28	76 56 15	BFL	JAMES	LOWER JAMES	2080206	NEW KENT CO. AT WALKERS DAM PUM
55H 20	37 25 46	76 53 29	BFL	JAMES	LOWER JAMES	2080206	JAMES CITY CO 0.9 MI NORTHEAST
55L 1	37 50 32	76 58 32	BFL	RAPPAHANNOCK	LOWER RAPPAHANNOCK	2080104	ESSEX CO. 2.0 MI NORTHWEST MILL
55P 5	38 11 10	76 55 05	BFL	POTOMAC	LOWER POTOMAC	2070011	WESTMORELAND CO. G. WASHINGTON
55P 9	38 11 32	76 55 10	BFL	POTOMAC	LOWER POTOMAC	2070011	WESTMORELAND CO. G. WASHINGTON
56F 1	37 13 11	76 46 36	BFL	JAMES	LOWER JAMES	2080206	JAMES CITY CO. 0.6 MI NORTH OF
56F 2	37 08 00	76 50 07	BFL	JAMES	LOWER JAMES	2080206	SURRY CO. IN TOWN OF SURRY
56G 57	37 21 45	76 49 32	BFL	JAMES	LOWER JAMES	2080206	JAMES CITY CO. AT LITTLE CREEK
56H 22	37 23 14	76 48 04	BFL	JAMES	LOWER JAMES	2080206	JAMES CITY CO. AT TOANO INDUSTR
56H 25	37 25 06	76 51 17	BFL	JAMES	LOWER JAMES	2080206	JAMES CITY CO. 4.0 MI NORTHWEST
56H 26	37 25 06	76 51 17	BFL	JAMES	LOWER JAMES	2080206	JAMES CITY CO. 4.0 MI NORTHWEST
56H 27	37 25 06	76 51 17	BFL	JAMES	LOWER JAMES	2080206	JAMES CITY CO. 4.0 MI NORTHWEST
56H 28	37 25 06	76 51 17	BFL	JAMES	LOWER JAMES	2080206	JAMES CITY CO. 4.0 MI NORTHWEST
56H 29	37 25 06	76 51 17	BFL	JAMES	LOWER JAMES	2080206	JAMES CITY CO. 4.0 MI NORTHWEST
56H 30	37 25 06	76 51 17	BFL	JAMES	LOWER JAMES	2080206	JAMES CITY CO. 4.0 MI NORTHWEST
56H 31	37 23 14	76 48 04	BFL	JAMES	LOWER JAMES	2080206	JAMES CITY CO. AT TOANO INDUSTR
56J 11	37 31 26	76 45 41	BFL	YORK	YORK	2080107	KING & QUEEN CO. 1.7 MI SOUTHEA

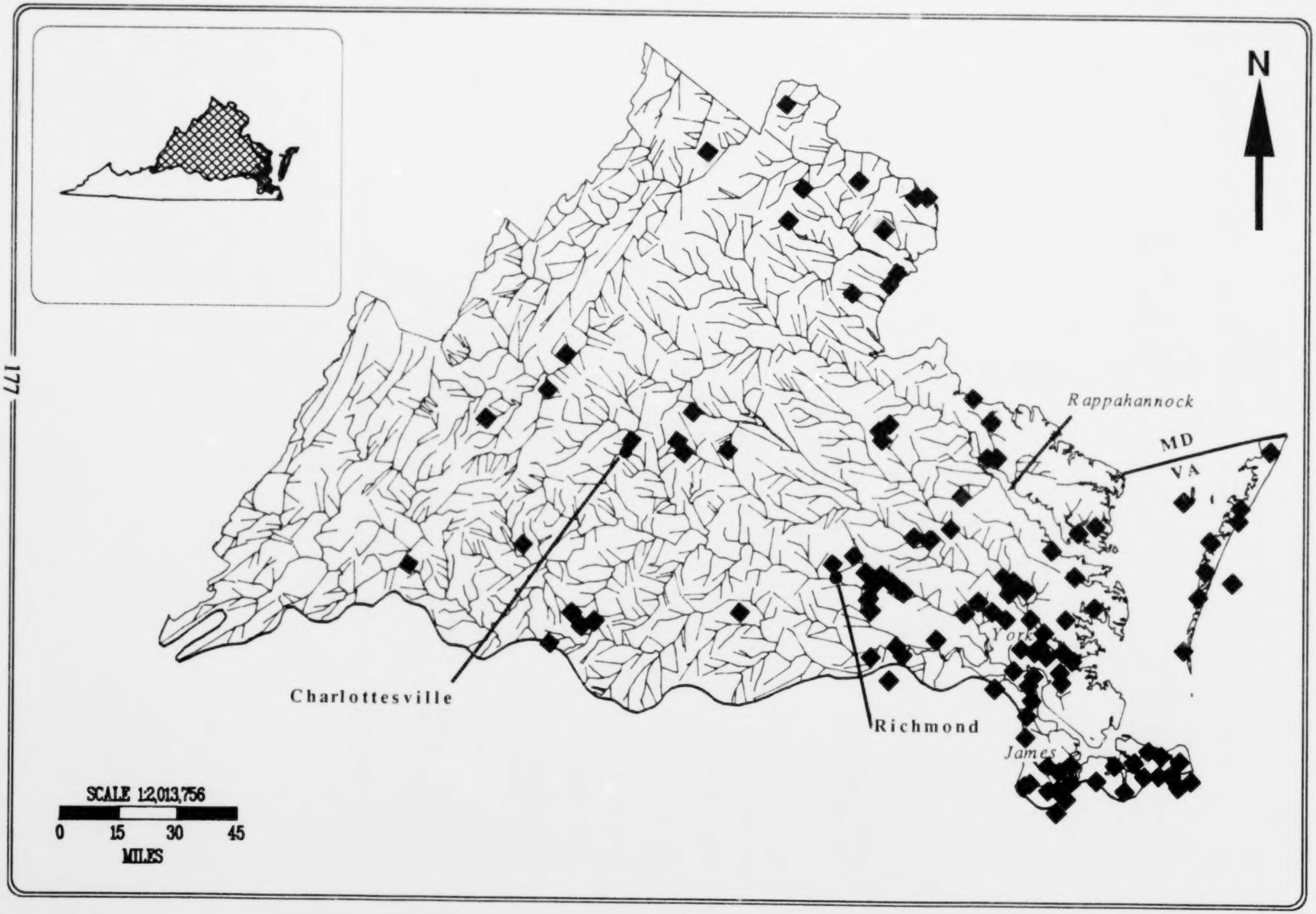
VIRGINIA OBSERVATION WELLS (Cont'd)

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
56J 18	37 32 06	76 48 12	BFL	YORK	PAMUNKEY	2080106	KING WILLIAM CO. IN TOWN OF WES
56J 2	37 32 26	76 48 12	BFL	YORK	PAMUNKEY	2080106	KING WILLIAM CO. IN TOWN OF WES
56M 6	37 58 01	76 48 05	BFL	RAPPAHANNOCK	LOWER RAPPAHANNOCK	2080104	RICHMOND CO. 2.5 MI WEST OF WAR
56M 7	37 57 55	76 50 56	BFL	RAPPAHANNOCK	LOWER RAPPAHANNOCK	2080104	RICHMOND CO. 2.0 MI WEST OF WAR
56N 1	38 05 38	76 49 08	BFL	RAPPAHANNOCK	LOWER RAPPAHANNOCK	2080104	WESTMORELAND CO. 0.5 MI EAST OF
56N 6	38 05 27	76 49 08	BFL	RAPPAHANNOCK	LOWER RAPPAHANNOCK	2080104	WESTMORELAND CO. 1.7 MI EAST OF
57C 11	36 48 33	76 44 07	BFL	JAMES	HAMPTON ROADS	2080208	ISLE OF WIGHT 1.5 MI OF WINDSOW
57C 12	36 46 55	76 38 11	BFL	JAMES	HAMPTON ROADS	2080208	SUFFOLK CITY 0.6 MI NORTHWEST O
57C 21	36 47 03	76 38 37	BFL	JAMES	HAMPTON ROADS	2080208	SUFFOLK CITY 1.0 MI WEST KINGS
57C 22	36 47 03	76 38 37	BFL	JAMES	HAMPTON ROADS	2080208	SUFFOLK CITY 1.0 MI WEST KINGS
57C 23	36 47 03	76 38 37	BFL	JAMES	HAMPTON ROADS	2080208	SUFFOLK CITY 1.0 MI WEST KINGS
57C 24	36 47 03	76 38 37	BFL	JAMES	HAMPTON ROADS	2080208	SUFFOLK CITY 1.0 MI WEST KINGS
57C 25	36 48 14	76 44 07	BFL	JAMES	HAMPTON ROADS	2080208	ISLE OF WIGHT CO. AT WINDSOR
57C 26	36 48 14	76 44 07	BFL	JAMES	HAMPTON ROADS	2080208	ISLE OF WIGHT CO. AT WINDSOR
57C 27	36 48 14	76 44 07	BFL	JAMES	HAMPTON ROADS	2080208	ISLE OF WIGHT CO. AT WINDSOR
57C 28	36 48 14	76 44 07	BFL	JAMES	HAMPTON ROADS	2080208	ISLE OF WIGHT CO. AT WINDSOR
57C 8	36 48 25	76 44 17	BFL	JAMES	HAMPTON ROADS	2080208	ISLE OF WIGHT 0.3 MI EAST WINDS
57D 21	36 57 51	76 43 35	BFL	JAMES	HAMPTON ROADS	2080208	ISLE OF WIGHT CO. 4.0 MI NNW IS
57D 22	36 57 51	76 43 35	BFL	JAMES	HAMPTON ROADS	2080208	ISLE OF WIGHT CO. 5.4 MI SOUTHW
57D 23	36 57 51	76 43 35	BFL	JAMES	HAMPTON ROADS	2080208	ISLE OF WIGHT CO. 5.4 MI SOUTHW
57E 10	37 02 36	76 42 59	BFL	JAMES	LOWER JAMES	2080206	ISLE WIGHT 2.5 MI SOUTHWEST OF
57E 11	37 07 12	76 41 32	BFL	JAMES	LOWER JAMES	2080206	SURRY CO. 2.5 MI NORTHWEST BACO
57E 12	37 07 12	76 41 32	BFL	JAMES	LOWER JAMES	2080206	SURRY CO. 2.5 MI NORTHWEST BACO
57E 13	37 07 12	76 41 32	BFL	JAMES	LOWER JAMES	2080206	SURRY CO. 2.5 MI NORTHWEST BACO
57E 14	37 02 53	76 43 12	BFL	JAMES	LOWER JAMES	2080206	ISLE WIGHT 2.5 MI SOUTHWEST OF
57E 15	37 02 53	76 43 12	BFL	JAMES	LOWER JAMES	2080206	ISLE WIGHT 2.5 MI SOUTHWEST OF
57F 16	37 11 32	76 40 55	BFL	JAMES	LOWER JAMES	2080206	SURRY CO. 7.6 MI NORTHEAST BACO
57F 24	37 11 32	76 40 55	BFL	JAMES	LOWER JAMES	2080206	SURRY CO. 7.6 MI NORTHEAST BACO
57F 6	37 10 08	76 41 49	BFL	JAMES	LOWER JAMES	2080206	SURRY CO. AT NUCLAR PLT VISTOR
57G 1	37 17 49	76 44 18	BFL	JAMES	LOWER JAMES	2080206	JAMES CITY CO. AT EASTERN STATE
57G 16	37 15 57	76 40 05	BFL	YORK	YORK	2080107	YORK CO. 0.2 MI EAST OF MAGRUDE
57G 17	37 16 54	76 40 16	BFL	YORK	YORK	2080107	YORK CO. 0.5 MI EAST OF WILLIAM
57G 19	37 17 35	76 39 15	BFL	YORK	YORK	2080107	YORK CO. 1.6 MI EAST OF WILLIAM
57G 2	37 19 16	76 37 59	LE-4	YORK	YORK	2080107	YORK CO. 3.3 MI NORTHEAST OF WI
57H 14	37 23 15	76 41 50	BFL	YORK	YORK	2080107	JAMES CITY CO. 1.3 MI EAST OF C
57J 3	37 30 08	76 42 56	BFL	YORK	YORK	2080107	KING & QUEEN CO. 2.8 MI SOUTH S
58B 235	36 43 30	76 34 51	BFL	JAMES	HAMPTON ROADS	2080208	SUFFOLK CITY IN PLANTERS PEANUT
58B 268	36 43 18	76 36 55	BFL	JAMES	HAMPTON ROADS	2080208	SUFFOLK CITY 0.5 MI WEST OF SUF
58B 269	36 43 18	76 36 55	BFL	JAMES	HAMPTON ROADS	2080208	SUFFOLK CITY 0.5 MI WEST OF SUF
58B 270	36 43 18	76 36 55	BFL	JAMES	HAMPTON ROADS	2080208	SUFFOLK CITY 0.5 MI WEST OF SUF
58B 271	36 43 18	76 36 55	BFL	JAMES	HAMPTON ROADS	2080208	SUFFOLK CITY 0.5 MI WEST OF SUF
58B 272	36 43 19	76 36 55	BFL	JAMES	HAMPTON ROADS	2080208	SUFFOLK CITY 0.6 MI WEST OF SUF
58B 273	36 43 48	76 36 32	BFL	JAMES	HAMPTON ROADS	2080208	SUFFOLK CITY 0.2 MI WEST OF SUF
58C 2	36 50 55	76 35 53	BFL	JAMES	HAMPTON ROADS	2080208	SUFFOLK CITY 0.5 MI SOUTH OF OA
58C 52	36 45 12	76 34 37	BFL	JAMES	HAMPTON ROADS	2080208	SUFFOLK CITY 0.8 MI SOUTHEAST E
58C 53	36 45 12	76 34 37	BFL	JAMES	HAMPTON ROADS	2080208	SUFFOLK CITY 0.8 MI SOUTHEAST E
58C 56	36 45 12	76 34 37	BFL	JAMES	HAMPTON ROADS	2080208	SUFFOLK CITY 0.8 MI SOUTHEAST E
58C 57	36 51 33	76 35 12	BFL	JAMES	LOWER JAMES	2080206	SUFFOLK CITY IN CHUCKATUCK
58C 58	36 51 33	76 35 12	BFL	JAMES	LOWER JAMES	2080206	SUFFOLK CITY IN CHUCKATUCK
58C 59	36 51 33	76 35 12	BFL	JAMES	LOWER JAMES	2080206	SUFFOLK CITY IN CHUCKATUCK
58C 60	36 51 33	76 35 12	BFL	JAMES	LOWER JAMES	2080206	SUFFOLK CITY IN CHUCKATUCK
58C 61	36 47 31	76 35 55	BFL	JAMES	HAMPTON ROADS	2080208	SUFFOLK CITY 2.3 MI SOUTHEAST E
58C 62	36 47 31	76 35 55	BFL	JAMES	HAMPTON ROADS	2080208	SUFFOLK CITY 2.3 MI SOUTHEAST E
58C 63	36 47 31	76 35 55	BFL	JAMES	HAMPTON ROADS	2080208	SUFFOLK CITY 2.3 MI SOUTHEAST E
58C 64	36 48 39	76 32 07	BFL	JAMES	HAMPTON ROADS	2080208	SUFFOLK CITY 2.3 MI NORTH OF KI
58C 8	36 52 18	76 31 30	BFL	JAMES	HAMPTON ROADS	2080208	SUFFOLK CITY 3.2 MI NORTHEAST C
58F 1	37 10 27	76 33 56	BFL	JAMES	LOWER JAMES	2080206	NEWPORT NEWS CITY
58F 14	37 14 44	76 30 15	LE-4	YORK	YORK	2080107	GLOUCESTER CO. AT GLOUCESTER PO
58F 50	37 12 08	76 34 11	BFL	JAMES	LOWER JAMES	2080206	NEWPORT NEWS CITY 0.7 MI NORTHE
58F 51	37 12 08	76 34 11	BFL	JAMES	LOWER JAMES	2080206	NEWPORT NEWS CITY 0.7 MI NORTHE
58F 52	37 12 08	76 34 11	BFL	JAMES	LOWER JAMES	2080206	NEWPORT NEWS CITY 0.7 MI NORTHE
58F 53	37 12 08	76 34 11	BFL	JAMES	LOWER JAMES	2080206	NEWPORT NEWS CITY 0.7 MI NORTHE
58F 54	37 12 08	76 34 11	BFL	JAMES	LOWER JAMES	2080206	NEWPORT NEWS CITY 0.7 MI NORTHE
58F 55	37 12 08	76 34 11	BFL	JAMES	LOWER JAMES	2080206	NEWPORT NEWS CITY 0.7 MI NORTHE
58H 4	37 23 31	76 31 26	BFL	YORK	GREAT WICOMICO-PIANKATANK	2080102	GLOUCESTER CO. AT SANITARY LAND
58H 7	37 23 31	76 31 26	BFL	YORK	GREAT WICOMICO-PIANKATANK	2080102	GLOUCESTER CO. AT SANITARY LAND
58H 8	37 23 31	76 31 26	BFL	YORK	GREAT WICOMICO-PIANKATANK	2080102	GLOUCESTER CO. AT SANITARY LAND

VIRGINIA OBSERVATION WELLS (Cont'd)

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
58K 1	37 38 09	76 34 25	BFL	RAPPAHANNOCK	LOWER RAPPAHANNOCK	2080104	MIDDLESEX CO. IN TOWN OF URBANN
59C 29	36 48 52	76 25 22	BFL	JAMES	HAMPTON ROADS	2080208	CHESAPEAKE CITY IN THE CITY OF
59C 30	36 48 52	76 25 22	BFL	JAMES	HAMPTON ROADS	2080208	CHESAPEAKE CITY IN THE CITY OF
59C 31	36 48 52	76 25 22	BFL	JAMES	HAMPTON ROADS	2080208	CHESAPEAKE CITY IN THE CITY OF
59F 1	37 13 04	76 29 19	BFL	YORK	YORK	2080107	YORK CO. AT USN SUPPLY CENTER N
59H 1	37 25 45	76 24 01	BFL	YORK	GREAT WICOMICO-PIANKATANK	2080102	MATHEWS CO. 1.1 MI NORTH OF NOR
59J 3	37 32 24	76 29 10	BFL	YORK	GREAT WICOMICO-PIANKATANK	2080102	MIDDLESEX CO. 2.2 MI SOUTHWEST
59K 1	37 42 49	76 23 07	BFL	RAPPAHANNOCK	LOWER RAPPAHANNOCK	2080104	LANCASTER CO. IN KILMARNOCK
59K 9	37 41 42	76 27 27	BFL	RAPPAHANNOCK	LOWER RAPPAHANNOCK	2080104	LANCASTER CO. 4.3 MI WSW KILMAR
60C 26	36 51 45	76 20 44	BFL	JAMES	HAMPTON ROADS	2080208	CITY OF PORTSMOUTH AT US NAVAL
60C 41	36 46 15	76 18 21	BFL	JAMES	HAMPTON ROADS	2080208	CHESAPEAKE CITY AT VEPCO POWER
61C 1	36 52 23	76 12 21	BFL	JAMES	HAMPTON ROADS	2080208	CITY OF NORFOLK AT MOORES BRIDG
61C 2	36 52 21	76 12 15	BFL	JAMES	HAMPTON ROADS	2080208	CITY OF NORFOLK AT MOORES BRIDG
61C 23	36 48 50	76 12 07	BFL	JAMES	HAMPTON ROADS	2080208	CITY OF VA. BEACH AT WOODSTOCK
61C 25	36 49 20	76 09 36	BFL	JAMES	HAMPTON ROADS	2080208	CITY OF VA. BEACH AT KEMPSVILLE
61C 27	36 49 20	76 09 32	BFL	JAMES	HAMPTON ROADS	2080208	CITY OF VA. BEACH AT KEMPSVILLE
61C 28	36 49 20	76 09 32	BFL	JAMES	HAMPTON ROADS	2080208	CITY OF VA. BEACH AT KEMPSVILLE
61C 29	36 49 20	76 09 32	BFL	JAMES	HAMPTON ROADS	2080208	CITY OF VA. BEACH AT KEMPSVILLE
61C 3	36 52 21	76 12 15	BFL	JAMES	HAMPTON ROADS	2080208	CITY OF NORFOLK AT MOORES BRIDG
61D 5	36 54 25	76 10 50	BFL	YORK	LYNNHAVEN-POQUOSON	2080108	CITY OF VA. BEACH ON FERRY ROAD
61D 6	36 53 27	76 08 05	BFL	YORK	LYNNHAVEN-POQUOSON	2080108	CITY OF VA. BEACH AT THOROUGHGO
62C 11	36 49 45	76 00 43	BFL	JAMES	HAMPTON ROADS	2080208	CITY OF VA. BEACH AT OCEANA NAV
62C 12	36 49 45	76 00 43	BFL	JAMES	HAMPTON ROADS	2080208	CITY OF VA. BEACH AT OCEANA NAV
62C 6	36 51 58	76 03 04	BFL	YORK	LYNNHAVEN-POQUOSON	2080108	CITY OF VA. BEACH AT TRANTWOOD
62C 7	36 49 06	76 04 39	BFL	JAMES	HAMPTON ROADS	2080208	CITY OF VA. BEACH AT PLAZA ELEM
62C 9	36 49 45	76 00 43	BFL	JAMES	HAMPTON ROADS	2080208	CITY OF VA. BEACH AT OCEANA NAV
62G 15	37 15 43	76 00 33	BFL	EASTERN SHORE	POCOMOKE	2060009	NORTHHAMPTON CO. 0.5 MI SHOUTH
63C 4	36 47 22	75 59 18	BFL	JAMES	HAMPTON ROADS	2080208	CITY OF VA. BEACH AT REDWING PA
63C 5	36 47 22	75 59 18	BFL	JAMES	HAMPTON ROADS	2080208	CITY OF VA. BEACH AT REDWING PA
63H 4	37 27 06	75 55 59	BFL	EASTERN SHORE	POCOMOKE	2060009	NORTHAMPTON CO. 0.5 MI NW OF BR
63H 5	37 27 06	75 55 59	BFL	EASTERN SHORE	POCOMOKE	2060009	NORTHAMPTON CO. 0.5 MI NW OF BR
63H 6	37 27 06	75 55 59	BFL	EASTERN SHORE	POCOMOKE	2060009	NORTHAMPTON CO. 0.5 MI NW OF BR
63J 1	37 32 16	75 54 07	BFL	EASTERN SHORE	POCOMOKE	2060009	NORTHAMPTON CO. 1.5 MI NW OF WA
64H 5	37 29 21	75 47 05	BFL	EASTERN SHORE	POCOMOKE	2060009	ACCOMACK CO. 4.2 MI NE OF NASSA
64K 7	37 38 45	75 52 25	BFL	EASTERN SHORE	POCOMOKE	2060009	ACCOMACK CO. 3.4 MI NW OF PUNGO
64K 8	37 38 45	75 52 25	BFL	EASTERN SHORE	POCOMOKE	2060009	ACCOMACK CO. 3.4 MI NW OF PUNGO
64K 9	37 38 45	75 52 25	BFL	EASTERN SHORE	POCOMOKE	2060009	ACCOMACK CO. 3.4 MI NW OF PUNGO
65K 2	37 43 24	75 44 32	BFL	EASTERN SHORE	POCOMOKE	2060009	ACCOMACK CO. 0.9 MI NE OF ONANC
65K 23	37 44 28	75 43 28	BFL	EASTERN SHORE	POCOMOKE	2060009	ACCOMACK CO. 2.6 MI NE OF ONANC
66M 16	37 57 23	75 34 45	BFL	EASTERN SHORE	POCOMOKE	2060009	ACCOMACK CO. 2.2 MI NE OF OAK H
66M 17	37 57 23	75 34 45	BFL	EASTERN SHORE	POCOMOKE	2060009	ACCOMACK CO. 2.2 MI NE OF OAK H
66M 18	37 57 23	75 34 45	BFL	EASTERN SHORE	POCOMOKE	2060009	ACCOMACK CO. 2.2 MI NE OF OAK H
66M 19	37 57 23	75 34 45	BFL	EASTERN SHORE	POCOMOKE	2060009	ACCOMACK CO. 2.2 MI NE OF OAK H

VIRGINIA OBSERVATION WELLS



WEST VIRGINIA OBSERVATION WELL NETWORK

PROGRAM DESCRIPTION: The West Virginia Observation Well Network consists of six wells in the Potomac River basin where water level is measured. In addition, water quality is sampled for from time to time at most of these wells.

PROGRAM OBJECTIVE: To provide a long-term data base of ground water level.

DATE INITIATED: 1956 - 1978

COORDINATING AGENCY:

U.S. Geological Survey
Water Resources Division
603 Morris Street
Charleston, West Virginia 25301

FUNDING AGENCY:

U.S. Geological Survey
West Virginia Geologic and Economic Survey

PARTICIPATING AGENCIES: U.S. Geological Survey- Charleston (USGS-Charleston)

INVESTIGATORS:

District Chief	D.H. Appel	USGS

PARAMETERS:

Water Level

STATIONS: There are six stations located in the West Virginia portion of the Potomac River basin. These are located in Berkley, Grant, Hampshire, Hardy, Mineral and Morgan Counties.

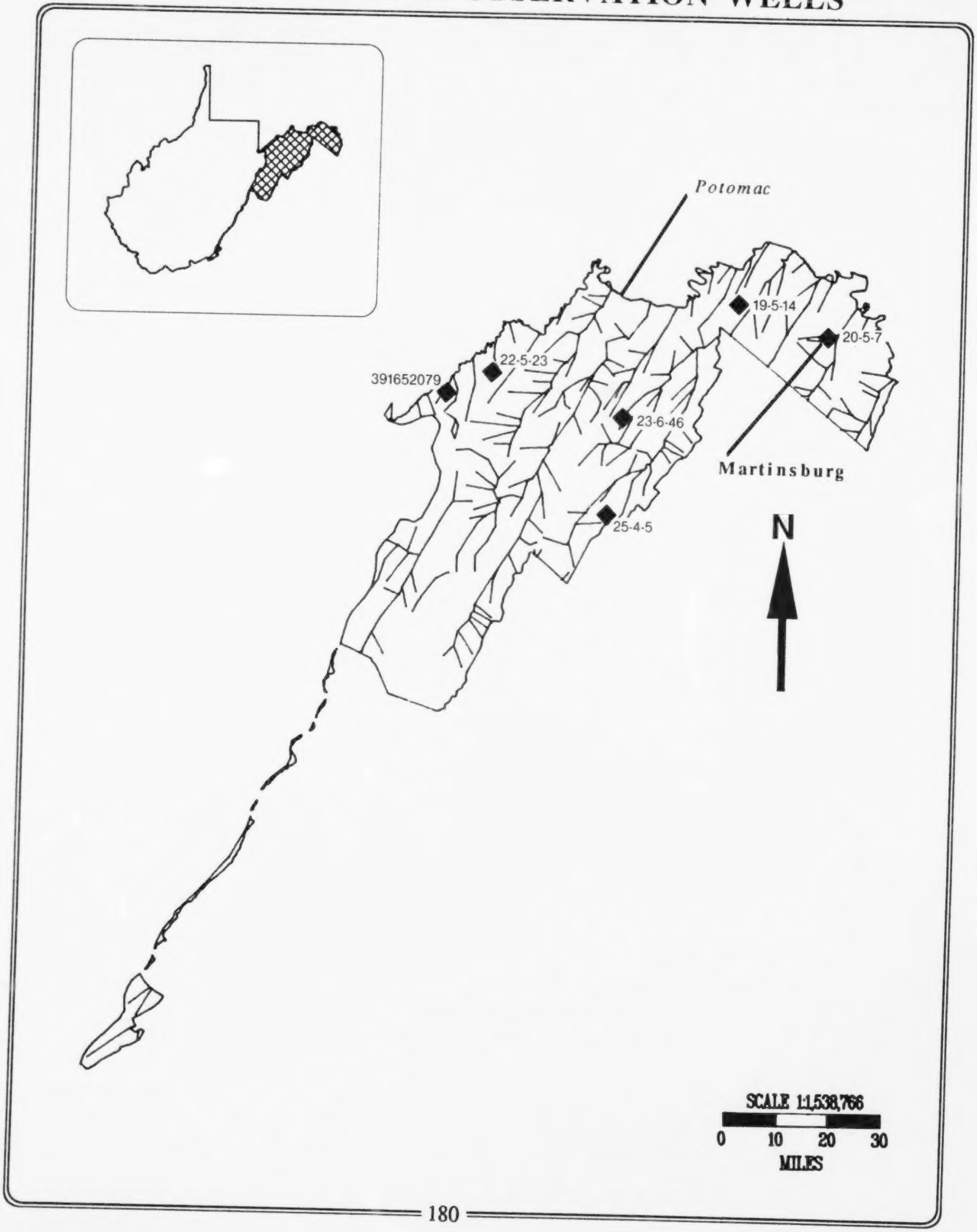
SAMPLE COLLECTION: Stations are equipped with either a continuous recording instrument (strip chart), a digital recorder or recordings are taken manually either weekly or monthly. All stations are visited every 6-8 weeks during warmer months and approximately monthly in colder months.

PROGRAM INTEGRATION: This program is part of a nationwide groundwater observation network.

WEST VIRGINIA OBSERVATION WELLS

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
19-5-14	39 30 43	78 17 40	AFL	POTOMAC	CACAPON-TOWN	2070003	CACAPON STATE PARK, WV
20-5-7	39 27 25	77 58 24	AFL	POTOMAC	CONOCOCHEAGUE-OPEQUON	2070004	JOHN ST. AND PORTER AVE., MARTI
22-5-23	39 21 14	79 08 11	AFL	POTOMAC	NORTH BRANCH POTOMAC	2070002	2 MILES NORTH OF RT. 50 AT SULP
23-6-46	39 12 57	78 40 46	AFL	POTOMAC	CACAPON-TOWN	2070003	STATE RT 7, 4 MILES SOUTH OF AU
25-4-5	38 57 14	78 44 13	AFL	POTOMAC	CACAPON-TOWN	2070003	NEAR TROUT POND RECREATION AREA
391652079	39 16 52	79 18 14	AFL	POTOMAC	NORTH BRANCH POTOMAC	2070002	NEAR US RT. 50, 3.5 MILES WEST

WEST VIRGINIA OBSERVATION WELLS



VIRGINIA LAKE MONITORING PROGRAM

PROGRAM DESCRIPTION: The Virginia Lake Monitoring Program is conducted at approximately 250 significant non-federally owned public lakes in Virginia. Through it, regional staff perform lake monitoring field surveys and compile summaries of regional lake data. In 1987 a five year cycle of lake water and sediment quality monitoring was initiated whereby significant non-federally owned public lakes are monitored one or two times per season, at least once within the five year cycle.

PROGRAM OBJECTIVES: To assess trophic status and to monitor trends in the trophic status of lakes in Virginia.

DATE INITIATED: 1974

COORDINATING AGENCY:

Virginia Water Control Board
Office of Environmental Research and Standards
2111 North Hamilton Street
Richmond, Virginia 23230

FUNDING AGENCIES: Virginia Water Control Board

PARTICIPATING AGENCIES:

Virginia Water Control Board (VWCB)
Virginia Division of Consolidated Laboratories (DCLS)

INVESTIGATORS:

Program Coordinator	Robert Ray	VWCB

PARAMETERS:

Dissolved Oxygen Depth Profile
Temperature Depth Profile
Secchi Depth
pH
Alkalinity
Hardness
Conductivity
Total Kjeldahl Nitrogen
Ammonia
Nitrate
Nitrite
Total Phosphorus
Total Organic Carbon
Fecal Coliform
Chlorophyll *a*
Preserved Algae
Metals (water and sediment)
Pesticides (water and sediment)

STATIONS: There are approximately 250 publicly-owned lakes monitored in the state of Virginia.

Note: Latitude and longitude coordinates were not available for this edition of the Atlas.

SAMPLE COLLECTION: Monitoring in each lake is conducted by small boat at one or more stations depending on the size of the lake. All samples are grab samples. Algal samples are preserved with copper sulfate and formalin. Other samples are either raw or frozen. A scan is performed on water column and sediment samples for pesticides and organic pollutants.

PROGRAM INTEGRATION: N/A

CONESTOGA HEADWATERS RURAL CLEAN WATER PROGRAM

PROGRAM DESCRIPTION: The Conestoga Headwaters Rural Clean Water Program was set up to assist in the determination of efficient and effective means of reducing and managing non-point source pollution from farming enterprises. The monitoring strategy for this program includes three components or monitoring phases. The first component, consisting of general monitoring on a regional scale in the entire Conestoga headwaters region, has been completed. The second component involves more detailed monitoring in a small watershed area of about 5.8 miles. There are nine stations designated for this phase - five base-flow stations to be monitored on a monthly basis and during selected storm events, three ground water stations to be monitored three times per year and one precipitation gauge with continuous monitoring. Two of the base-flow stations also serve as stream gauges which continuously monitor water level. This phase is scheduled to continue through September 1989. The third component consists of intensive monitoring at two field sites. Monitoring at one field site will continue through September 1989 and monitoring at the second field site will continue through September 1990, with a possible extension (not as a Rural Clean Water Program) beyond this time if funding sources are found.

PROGRAM OBJECTIVES: To compare surface and ground water quality before and after the implementation of agricultural Best Management Practices (BMPs). Nutrient management BMPs have been emphasized in the monitoring components.

DATE INITATED: 1982

COORDINATING AGENCY:

Pennsylvania Department of Environmental Resources
Bureau of Water Quality Management
P.O. Box 2063
Harrisburg, Pennsylvania 17120

FUNDING AGENCIES:

U.S. Department of Agriculture, Agricultural Stabilization and Conservation Service
U.S. EPA Region III
U.S. Geological Survey

PARTICIPATING AGENCIES:

Pennsylvania Department of Environmental Resources (PADER)
U.S. Department of Agriculture, Soil Conservation Service (SCS)
U.S. Geological Survey (USGS)
Pennsylvania State University (PSU)
U.S. Department of Agriculture, Agricultural Stabilization and Conservation Service (ASCS)

INVESTIGATORS:

RCWP Coordinator	Mary Jo Brown	PADER

PARAMETERS:

Temperature
Specific Conductivity
Total Nitrate + Nitrite
Dissolved Nitrate + Nitrite
Total Nitrite
Dissolved Nitrite

Total Ammonia
Dissolved Ammonia
Total Kjeldahl Nitrogen (wholewater)
Total Kjeldahl Nitrogen (filtrate)
Total Phosphorus
Dissolved Phosphorus
Total Suspended Sediment

Pesticides:
Alachlor
Atrazine
Cyanazine
Metolachlor
Propazine
Simazine
Toxaphene

STATIONS: There are nine stations under Component 2 in the Little Conestoga Creek small watershed area of about 5.8 miles until September of 1989. Five of these are base-flow stations, three are ground water stations, and one is a rain gauging station. Two of the baseflow stations also serve as stream gauging (or continuous level recording) stations. After September 1989 (Component 3), two surface runoff stations, two precipitation gauges, and 13 groundwater stations will continue to be monitored.

SAMPLE COLLECTION: Under Component 2, water chemistry samples at the five baseflow stations are collected monthly. Storm surface water sample collection is also conducted at two of these stations (gauging stations) which are equipped with automated stage recorders and automatic sampling devices. A rain gauge is located in the small watershed. Grab samples are collected at the ground water stations three times a year .

Under Component 3, groundwater, surface runoff and precipitation will be monitored at one field site through September 1989, and groundwater and precipitation will be monitored at the second field site through September 1990. Groundwater is sampled monthly with water levels being measured continuously. Precipitation is also recorded continuously.

Soil samples for nutrient analysis are collected twice a year at the small watershed area and both field sites.

PROGRAM INTEGRATION: N/A

CONESTOGA HEADWATERS RURAL CLEAN WATER STATIONS - SMALL WATERSHED

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
015760831	40 09 22	75 55 14	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	SURFACE WATER STATION AT VALLEY
0157608325	40 08 58	75 55 06	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	SURFACE WATER STATION SITE 2A N
015760839	40 08 20	75 58 14	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	UNNAMED TRIBUTARY TO LITTLE CON
01576085	40 08 41	75 59 20	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	SURFACE WATER STATION NEAR CHUR
01576335	40 11 50	76 10 54	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	FIELD RUNOFF STATION
LN1586	40 08 53	75 55 21	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	GROUND WATER STATION
LN1662	40 09 10	75 55 44	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	GROUND WATER STATION
LN1663	40 08 43	75 55 27	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	GROUND WATER STATION
PRECIP	40 08 30	76 56 15	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	PRECIPITATION MONITOR

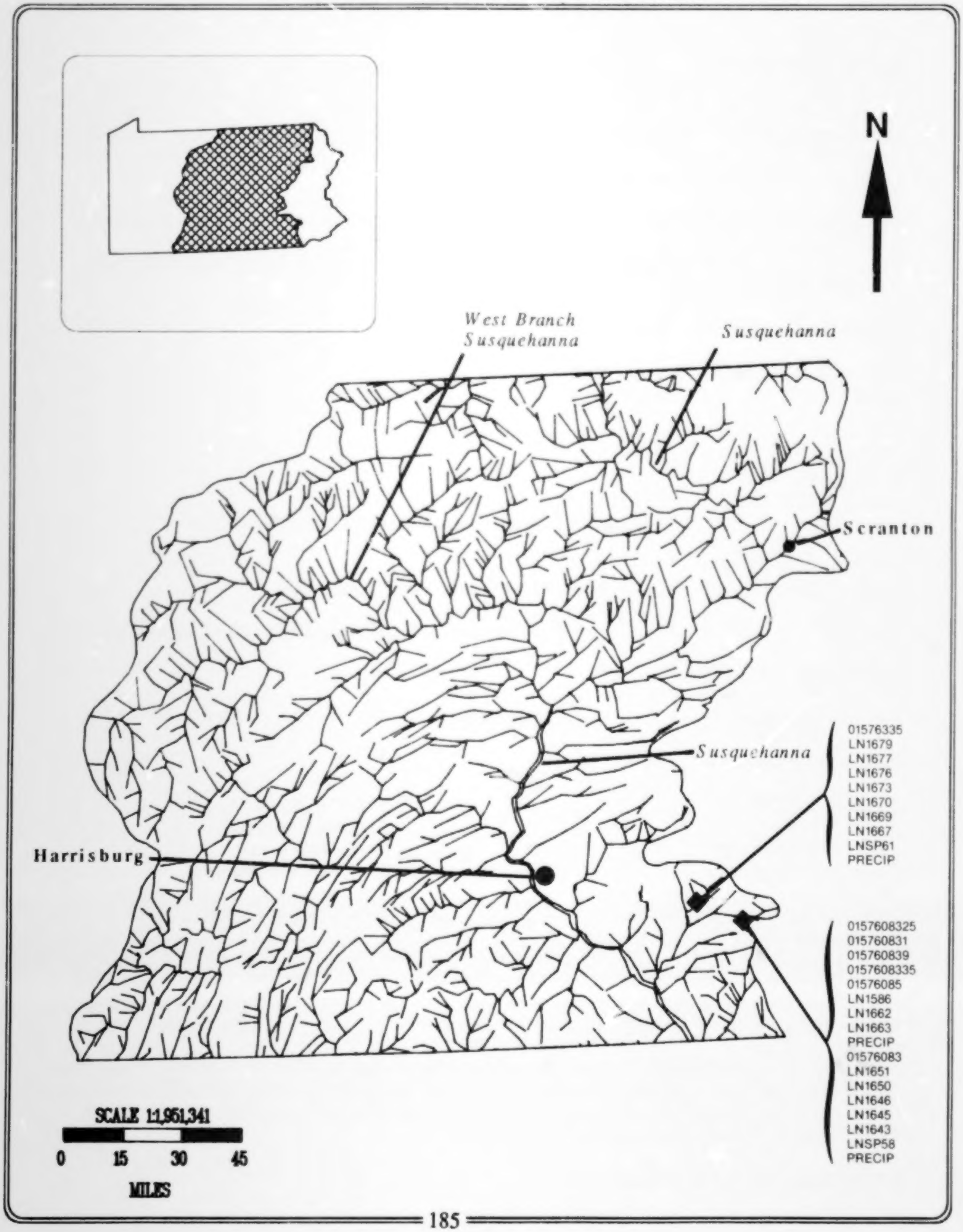
CONESTOGA HEADWATERS RURAL CLEAN WATER STATIONS - FIELD SITE 1

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
01576083	40 07 42	75 58 39	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	FIELD RUNOFF STATION
LN1643	40 07 46	75 58 42	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	GROUNDWATER STATION
LN1645	40 07 41	75 58 43	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	GROUNDWATER STATION
LN1646	40 07 46	75 58 48	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	GROUNDWATER STATION
LN1650	40 07 43	75 58 51	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	GROUNDWATER STATION
LN1651	40 07 39	75 58 52	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	GROUNDWATER STATION
LNSP58	40 07 45	75 58 37	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	GROUNDWATER STATION
PRECIP	40 07 42	75 58 47	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	PRECIPITATION MONITOR

CONESTOGA HEADWATERS RURAL CLEAN WATER STATIONS - FIELD SITE 2

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
0157608335	40 08 47	75 55 37	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	SURFACE WATER STATION SITE 3A N
LN1667	40 11 51	76 10 55	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	GROUNDWATER STATION
LN1669	40 11 48	76 10 56	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	GROUNDWATER STATION
LN1670	40 11 54	76 10 56	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	GROUNDWATER STATION
LN1673	40 11 50	76 11 03	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	GROUNDWATER STATION
LN1676	40 11 52	76 11 00	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	GROUNDWATER STATION
LN1677	40 11 56	76 11 02	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	GROUNDWATER STATION
LN1679	40 11 52	76 10 56	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	GROUNDWATER STATION
LNSP61	40 11 51	76 10 53	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	GROUNDWATER STATION
PRECIP	40 11 50	76 10 54	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA-SWATARA	2050305	PRECIPITATION MONITOR

CONESTOGA HEADWATERS RURAL CLEAN WATER STATIONS



SUSQUEHANNA RIVER BASIN COMMISSION NUTRIENT MONITORING PROGRAM

PROGRAM DESCRIPTION: The Susquehanna River Basin Commission Nutrient Monitoring Program is designed to provide baseline nutrient loading data for mainstem, major tributaries and small watersheds supporting typical patterns of land use found in the central and lower Susquehanna River basin. Sampling is conducted at 13 stations on a monthly basis and during selected storm events. This program was initiated as a five year study scheduled to end in 1989, but its fate as of spring 1989 is undetermined.

PROGRAM OBJECTIVES: To estimate nutrient and suspended sediment loads related to specific land uses and combinations of land uses, and to establish a sound data base for government, agriculture, industry and the public to effectively plan and to implement nutrient reduction efforts.

DATE INITIATED: October 1984

COORDINATING AGENCY:

Susquehanna River Basin Commission
1721 North Front Street
Harrisburg, Pennsylvania 17102

FUNDING AGENCIES:

U.S. EPA Region III
Pennsylvania Department of Environmental Resources

PARTICIPATING AGENCIES:

Susquehanna River Basin Commission (SRBC)
U.S. Geological Survey (USGS)
Pennsylvania Department of Environmental Resources (PADER)

INVESTIGATORS:

Program Coordinator	Jerry Hollowell	SRBC

PARAMETERS:

- Temperature
- pH
- Specific Conductivity
- Suspended Sediment
- Total Kjeldahl Nitrogen (wholewater)
- Total Kjeldahl Nitrogen (filtrate)
- Nitrate + Nitrite
- Total Ammonia
- Dissolved Ammonia
- Total Phosphorus
- Dissolved Phosphorus
- Dissolved Inorganic Phosphorus
- Total Organic Carbon

STATIONS: There are 13 stations located on the Susquehanna River, the Juniata River, West Conewago Creek, Swatara Creek, Conestoga River, Paxton Creek, Sherman Creek and Codorus Creek. The majority of the monitoring stations are located at USGS gauging stations.

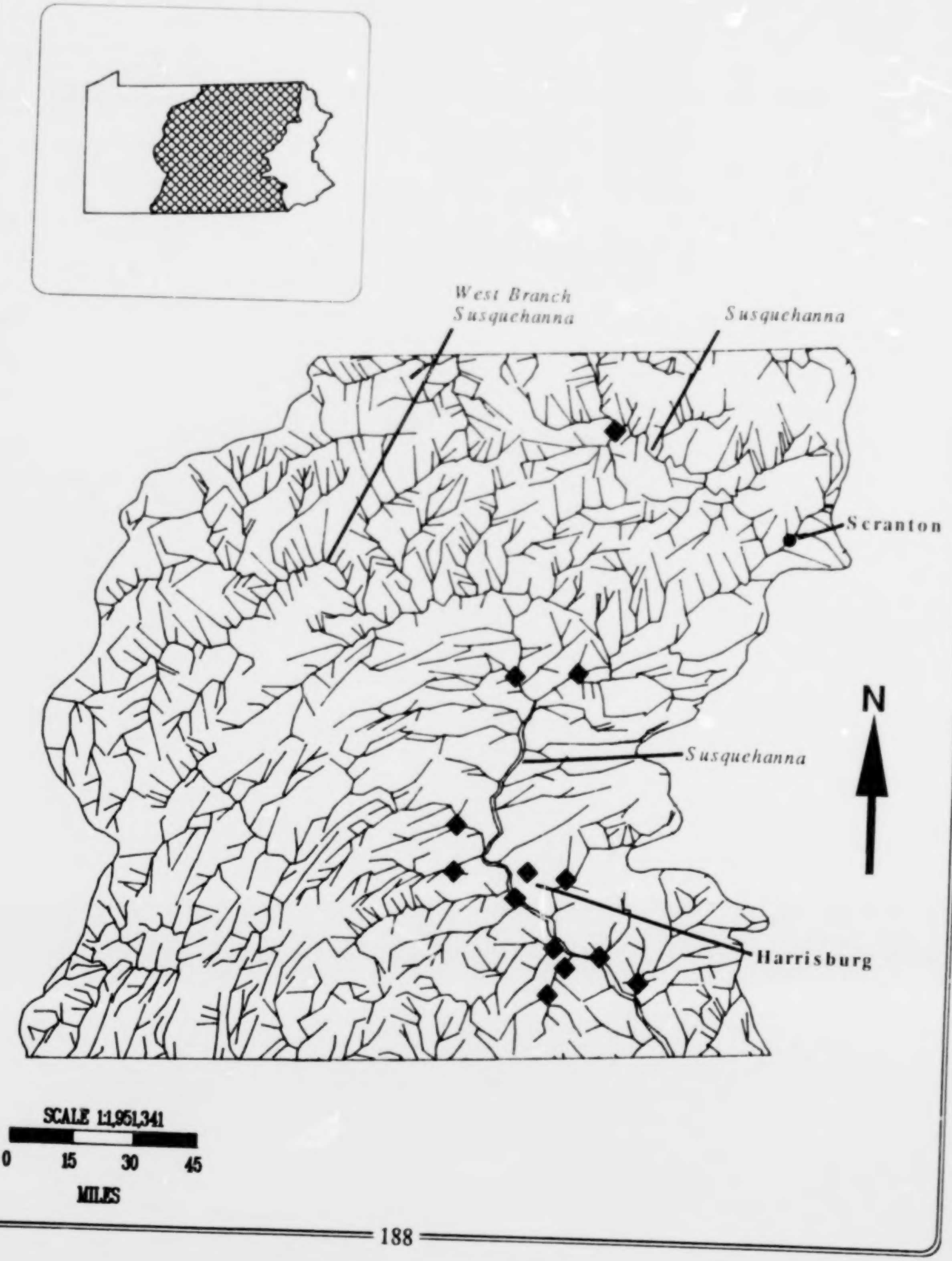
SAMPLE COLLECTION: Nutrient sampling is conducted monthly for baseflow and during selected storm events. These events document seasonal and major spring runoff, and are sampled during the rising and falling stream stage. All samples are collected from multiverticals and are depth-integrated using USGS standard equipment.

PROGRAM INTEGRATION: N/A

SUSQUEHANNA RIVER BASIN COMMISSION
NUTRIENT MONITORING STATIONS

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
1531500	41 45 55	76 26 28	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-TUNKHANNOCK	2050106	SUSQUEHANNA RIVER AT TOWANDA
1540500	40 57 29	76 37 10	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-LACKAWANNA	2050107	SUSQUEHANNA RIVER AT DANVILLE
1553500	40 58 05	76 52 25	AFL	SUSQUEHANNA	LOWER WEST BRANCH SUSQUEHANNA	2050206	SUSQUEHANNA RIVER AT LEWISBURG
1567000	40 28 42	77 07 46	AFL	SUSQUEHANNA	LOWER JUNIATA	2050304	JUNIATA RIVER AT NEWPORT
1568000	40 19 24	77 10 09	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA-SWATARA	2050305	SHERMANS CREEK AT SHERMANSDALE
1570500	40 15 17	76 53 11	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA-SWATARA	2050305	SUSQUEHANNA RIVER AT HARRISBURG
1571000	40 18 30	76 51 00	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA-SWATARA	2050305	PAXTON CREEK AT PENBROOK
1573560	40 17 54	76 40 05	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA-SWATARA	2050305	SWATARA CREEK AT HERSHEY
1574000	40 04 56	76 43 13	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	WEST CONEWAGO CREEK AT MANCHEST
1575500	39 56 46	76 45 20	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	CODORUS CREEK AT YORK
1575585	40 01 07	76 41 36	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	CODORUS CREEK AT PLEASUREVILLE
1576000	40 03 16	76 31 52	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	SUSQUHANNA AT MARIETTA, PA
1576754	39 56 47	76 22 05	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	CONESTOGA RIVER AT CONESTOGA

SUSQUEHANNA RIVER BASIN COMMISSION NUTRIENT MONITORING PROGRAM



US GEOLOGICAL SURVEY LOWER SUSQUEHANNA RIVER NUTRIENT CONTROL PROJECT

PROGRAM DESCRIPTION: The U.S. Geological Survey Nutrient Contol project is designed to determine the effects of agricultural Best Management Practices (BMPs) and other innovative techniques on controlling nutrient and sediment discharges in small watersheds underlain by non-carbonate rock. The monitoring program is structured so that results can be compared with data collected by the U.S. Geological Survey in small watersheds underlain by carbonate rock. Sampling is conducted on a monthly basis and during selected storms at one location in York County, and at one location in Adams County. This project was initiated as a five-year study to end in 1990, but its fate as of spring 1989 is undetermined.

PROGRAM OBJECTIVES: To determine the effects of BMPs on controlling nutrient and sediment discharges in agricultural watersheds that are less than one square mile in drainage and underlain by non-carbonate rock, and to provide information that can be compared with results from monitoring of small watersheds underlain by carbonate rock.

DATE INITIATED: October 1985

COORDINATING AGENCY:

Susquehanna River Basin Commission
1721 North Front Street
Harrisburg, Pennsylvania 17102

FUNDING AGENCIES:

U.S. Geological Survey
Susquehanna River Basin Commission

PARTICIPATING AGENCIES:

U.S. Geological Survey (USGS)
Pennsylvania Department of Environmental Resources (PADER)
Pennsylvania State University (PSU)

INVESTIGATORS:

Project Chief	David K. Fishel	USGS - Harrisburg

PARAMETERS:

Temperature
pH
Specific Conductance
Suspended Sediment
Total Kjeldahl Nitrogen (wholewater)
Total Kjeldahl Nitrogen (filtrate)
Total Ammonia
Dissolved Ammonia
Nitrate + Nitirite
Total Phosphorus
Dissolved Phosphorus
Dissolved Inorganic Phosphorus

STATIONS: There are four surface water stations, one tile drain, 15 precipitaion stations, 12 dry-fall stations, and six fields where soil samples are collected at the Brush Run location in Adams County. There is one surface water station, one precipitation station, and four fields where soil samples are collected at the Bald Eagle Creek location.

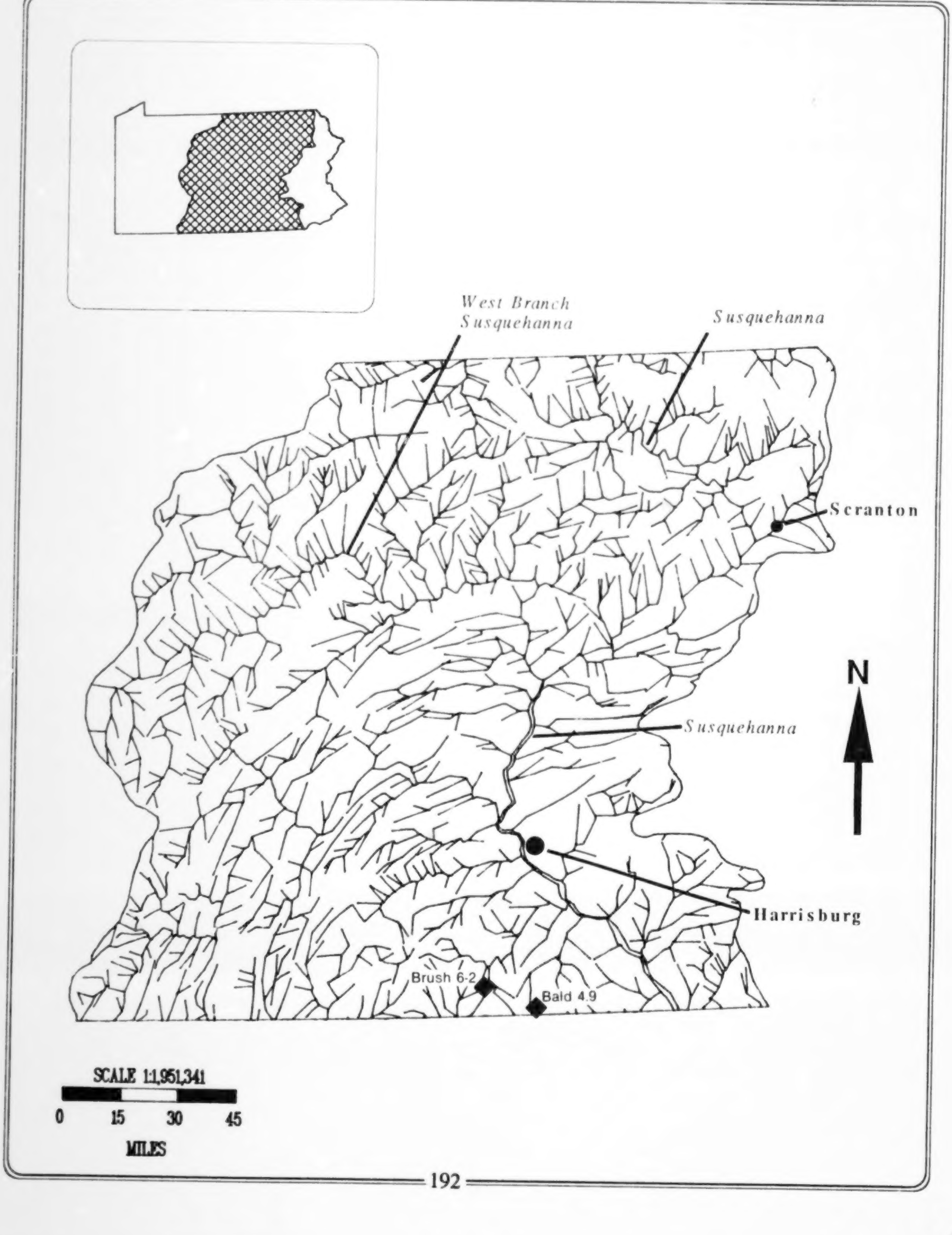
SAMPLE COLLECTION: Base flow samples are collected monthly at all surface-water stations, and samples are collected at the continuous-gaging stations at Brush Run and Bald Eagle Creek during selected storms to determine seasonal variations in nutrient and sediment concentrations and discharges. At the Brush Run site, samples are collected prior to the rise of stream stages and during the rise and recess to determine possible contributions from dry deposition of ammonia. Soil samples are collected prior to spring applications of fertilizers and after the harvesting of corn.

PROGRAM INTEGRATION: N/A

USGS LOWER SUSQUEHANNA RIVER NUTRIENT CONTROL MONITORING STATIONS - SURFACE WATER

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
01573808	39 49 06	77 06 26	AFL	POTOMAC	MONOCACY	2070009	BRUSH RUN SITE 1 NEAR MC SHERRY
01573810	39 49 06	77 06 26	AFL	POTOMAC	MONOCACY	2070009	BRUSH RUN SITE 2 NEAR MC SHERRY
01573811	39 49 11	77 06 25	AFL	POTOMAC	MONOCACY	2070009	BRUSH RUN SITE 3 NEAR MC SHERRY
01573815	39 49 35	77 06 08	AFL	POTOMAC	MONOCACY	2070009	BRUSH RUN SITE 4 NEAR MC SHERRY
01577400	39 44 54	76 27 50	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	BALD EAGLE CREEK AT FAWN GROVE
1	39 45 08	76 27 54	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	BALD EAGLE CREEK FARM 1, FIELD
10	39 49 00	77 06 37	AFL	POTOMAC	MONOCACY	2070009	BRUSH RUN FIELD 6
2	39 45 18	76 28 00	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	BALD EAGLE CREEK FARM 1, FIELD
3	39 45 02	76 28 33	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	BALD EAGLE CREEK FARM 2, FIELD
4	39 45 00	76 28 22	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	BALD EAGLE CREEK FARM 2, FIELD
5	39 49 07	77 06 32	AFL	POTOMAC	MONOCACY	2070009	BRUSH RUN FIELD 1
6	39 49 19	77 06 26	AFL	POTOMAC	MONOCACY	2070009	BRUSH RUN FIELD 2
7	39 49 03	77 06 25	AFL	POTOMAC	MONOCACY	2070009	BRUSH RUN FIELD 3
77062601	39 49 06	77 06 26	AFL	POTOMAC	MONOCACY	2070009	TILE DRAIN TO BRUSH RIN NEAR MC
8	39 49 14	77 06 10	AFL	POTOMAC	MONOCACY	2070009	BRUSH RUN FIELD 4
9	39 48 57	77 06 30	AFL	POTOMAC	MONOCACY	2070009	BRUSH RUN FIELD 5

U.S. GEOLOGICAL SURVEY LOWER SUSQUEHANNA RIVER NUTRIENT CONTROL MONITORING STATIONS



DOUBLE PIPE CREEK RURAL CLEAN WATER PROJECT WATER QUALITY MONITORING PROGRAM

PROGRAM DESCRIPTION: The Double Pipe Creek Rural Clean Water Project Water Quality Monitoring Program is an agricultural Best Management Practice (BMP) implementation program intended to promote the establishment of agricultural BMPs in order to improve water quality in the watershed. There is one station located at the USGS Gaging Station in Big Pipe Creek. A second station is located on a farm near Union Bridge on Little Pipe Creek. Runoff samples are being collected prior to and after BMP installation. Monthly samples are collected as part of the state's CORE water quality sampling program and runoff samples are collected during approximately 12-15 runoff events per year.

PROGRAM OBJECTIVES: To characterize base flow and runoff water quality in this highly agricultural watershed. To determine if the agricultural BMPs implemented have had an observable, beneficial impact on water quality.

DATE INITIATED: June 1983 (Versar) - Picked up by MDE November 1986

COORDINATING AGENCY:

Maryland Department of the Environment
Water Management Administration
2500 Broening Highway
Baltimore, Maryland 21224

FUNDING AGENCIES: Maryland Department of the Environment

PARTICIPATING AGENCIES:

Maryland Department of the Environment (MDE)
Agricultural Stabilization and Conservation Service, Carroll County (ASCS)
Carroll Soil Conservation District (CSC)
University of Maryland Cooperative Extension Service, Carroll County (UMDCES)

INVESTIGATORS:

Project Officer	John McCoy	MDE
Field Sampling Operations	Charles A. Poukish	MDE

PARAMETERS:

Alkalinity
Total Kjeldahl Nitrogen (wholewater)
Total Kjeldahl Nitrogen (filtrate)
Nitrite
Nitrate + Nitrite
Ammonia
Total Phosphorus
Total Dissolved Phosphorus
Dissolved Inorganic Phosphorus
Total Organic Carbon
Dissolved Organic Carbon
Total Suspended Solids
Total Volatile Solids
Dissolved Solids
Turbidity
Fecal Coliform
Chemical Oxygen Demand

STATIONS: There is one station located on Big Pipe Creek at the USGS streamflow gaging station near Bruceville, Maryland. The second station is located on a small tributary of Little Pipe Creek near Union Bridge, Maryland.

SAMPLE COLLECTION: Monthly water quality samples are collected at the Bruceville site as part of the state's CORE water quality sampling program. These samples provide an indication of baseline (non-runoff) conditions and can be used in refining loading calculations.

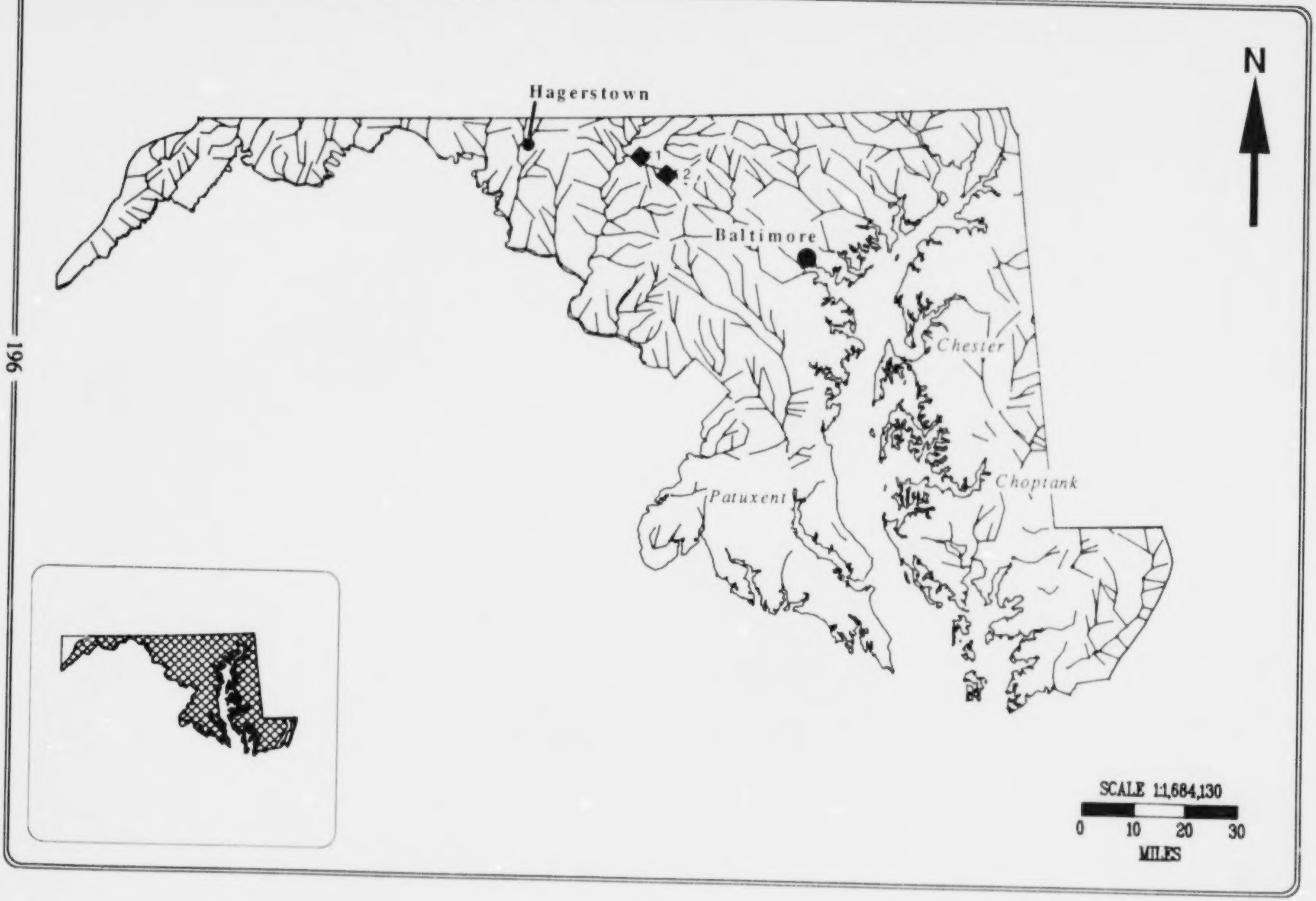
Runoff (storm) samples are collected on a periodic basis during approximately 12-15 runoff events per year. Samples are collected over the runoff hydrograph on a flow proportional basis.

PROGRAM INTEGRATION: The Bruceville site is also sampled as part of Maryland's CORE monitoring program.

DOUBLE PIPE CREEK RCWP WATER QUALITY MONITORING STATIONS

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
1	39 36 45	77 14 10	AFL	POTOMAC	MONOCACY	2070009	BIG PIPE CREEK NEAR BRUCEVILLE,
2	39 33 00	77 09 00	AFL	POTOMAC	MONOCACY	2070009	UNION BRIDGE RT 75, W CARROLL C

DOUBLE PIPE CREEK RCWP WATER QUALITY MONITORING STATIONS



NOMINI CREEK WATERSHED WATER QUALITY MONITORING PROGRAM

PROGRAM DESCRIPTION: The Nomini Creek Watershed Water Quality Monitoring Program is conducted at two surface runoff stations (one of which also serves as a biological station), four groundwater stations and seven rainfall gauging stations (one of which also serves as a weather station) in the 3700 acre Nomini Creek Watershed. Water sampling is conducted weekly and during storm events, biological sampling is conducted every two weeks, groundwater is sampled monthly, and rainfall and climatological data are monitored on a continuous basis.

This small, representative watershed in the Virginia coastal plain was selected for monitoring in order to document water quality changes as a result of the implementation of Best Management Practices (BMPs). The monitoring schedule includes an initial period of sampling to collect baseline data, followed by the installation of BMPs and continued monitoring. These practices are encouraged by the program through a series of incentives to area farmers, and by the establishment of demonstration fields set up within the watershed.

PROGRAM OBJECTIVES: To quantify water quality benefits (short- and long-term) that are derived from BMP application in an actual watershed, and to establish a database for nonpoint source modeling.

DATE INITIATED: April 1985

COORDINATING AGENCY:

Virginia Department of Conservation and Historic Resources
Division of Soil and Water Conservation
203 Governor Street, Suite 206
Richmond, Virginia 23219

FUNDING AGENCIES:

U.S. EPA Region III
Commonwealth of Virginia

PARTICIPATING AGENCIES:

Virginia Department of Conservation and Historic Resources (DCHR)
Virginia Polytechnic Institute and State University (VPI&SU)
U.S. Department of Agriculture, Soil Conservation Service (SCS)
Northern Neck Soil and Water Conservation District (NNSWCD)
Westmoreland County Agriculture and Stabilization Conservation Service Office (WASCS)

INVESTIGATORS:

Project Officer	J. Michael Flagg	DCHR
Principal Investigator	Saied Mostaghimi	VPI&SU

PARAMETERS:

Surface Runoff Stations:

Water Level
Total Kjeldahl Nitrogen
Total Nitrogen
Nitrate
Ammonia
Total Phosphorus
Total Dissolved Phosphorus

Dissolved Inorganic Phosphorus
Total Suspended Solids
Chemical Oxygen Demand

Herbicides/ Insecticides:
Atrazine
Banvel (Dicamba)
Basagran (bentazon)
Blazer (aciflourfen)
Disyston (disulfoton)
Dual (metachlor)
Furadan (carbofuran)
Fusilade (fluazifor-butyl)
Lasso (alachlor)
Lexone (metribuzin)
Lorox (linuron)
Malathion (malathion)
Paraquat
Poast (sethoxydim)
Pounce (permethrin)
Pydrin (fenvalerate)
Princep
Roundup (glyphosate)
Sevin (carbaryl)
Sticker
Surflan (oryzalin)
Toxphene
Treflan (trifluralin)
2,4-D

Biological Station::
Taxa Identification
Taxa Richness
Distribution of Taxa

Weather Station:
Evaporation
Humidity
Solar Radiation
Wind Direction
Wind Speed

STATIONS: There are two surface runoff stations (one of which serves also as a biological station), four pairs of ground water stations and seven rainfall gauging stations (one of which is also the weather station) within the Nomini Creek watershed.

SAMPLE COLLECTION: Continuous hydrologic data are gathered at two fully automated runoff stations, at four pairs of groundwater stations, and at seven rainfall gauges around the watershed. Water samples are collected for sediment and nutrient analysis weekly and at every 0.1 foot change of stage during storm runoff. Ground water samples are collected monthly. Initially, this sampling was conducted at existing wells but, in March of 1986, four pairs of monitoring wells were drilled for better quality assurance in groundwater sampling and to investigate the movement of fertilizers and pesticides on a field basis.

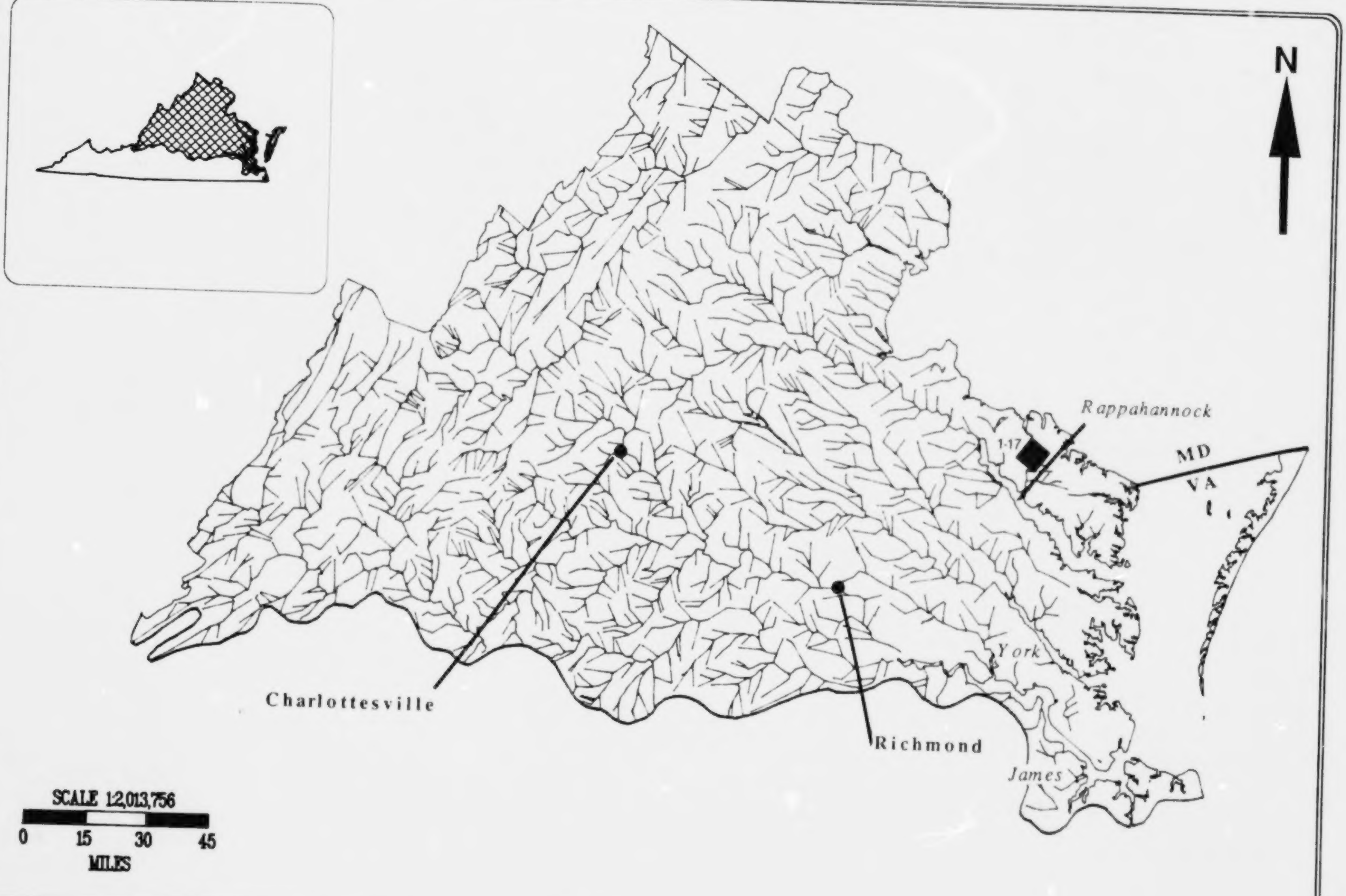
Pesticide analysis is conducted on groundwater and surface water samples monthly and on storm runoff samples. Precipitation and meteorological monitoring are conducted on a continuous basis. Biological sampling is collected every two weeks from artificial substrates (polyurethane foam) which are placed at the main sampling site in order to develop replicated protozoan communities. Soil cores are also sampled periodically to monitor nutrient movement through the soil column. Land use data, which includes crop, cropping practice and percent cover are recorded quarterly by a field observer.

PROGRAM INTEGRATION: N/A

NOMINI CREEK WATERSHED MONITORING STATIONS

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
1	38 01 34	76 42 24	BFL	POTOMAC	LOWER POTOMAC	2070011	RUNOFF GAUGING SITE
10	38 00 23	76 42 56	BFL	RAPPAHANNOCK	LOWER RAPPAHANNOCK	2080104	GROUNDWATER WELL
11	38 00 19	76 43 02	BFL	RAPPAHANNOCK	LOWER RAPPAHANNOCK	2080104	GROUNDWATER WELL
12	38 00 09	76 43 11	BFL	RAPPAHANNOCK	LOWER RAPPAHANNOCK	2080104	RAIN GAUGE
13	38 00 13	76 41 06	BFL	RAPPAHANNOCK	LOWER RAPPAHANNOCK	2080104	RAIN GAUGE
14	38 00 20	76 39 39	BFL	POTOMAC	LOWER POTOMAC	2070011	RAIN GAUGE
15	37 59 42	76 41 56	BFL	RAPPAHANNOCK	LOWER RAPPAHANNOCK	2080104	GROUNDWATER WELL
16	37 59 41	76 41 49	BFL	RAPPAHANNOCK	LOWER RAPPAHANNOCK	2080104	GROUNDWATER WELL
17	37 59 19	76 42 00	BFL	RAPPAHANNOCK	LOWER RAPPAHANNOCK	2080104	RAIN GAUGE
2	38 01 37	76 42 17	BFL	POTOMAC	LOWER POTOMAC	2070011	RAIN GAUGE
3	38 00 60	76 42 56	BFL	RAPPAHANNOCK	LOWER RAPPAHANNOCK	2080104	RAIN GAUGE
4	38 01 00	76 41 24	BFL	POTOMAC	LOWER POTOMAC	2070011	GROUNDWATER WELL
5	38 00 55	76 41 17	BFL	POTOMAC	LOWER POTOMAC	2070011	GROUNDWATER WELL
6	38 00 45	76 42 55	BFL	RAPPAHANNOCK	LOWER RAPPAHANNOCK	2080104	GROUNDWATER WELL
7	38 00 40	76 42 58	BFL	RAPPAHANNOCK	LOWER RAPPAHANNOCK	2080104	GROUNDWATER WELL
8	38 00 34	76 40 25	BFL	POTOMAC	LOWER POTOMAC	2070011	RAIN GAUGE
9	38 00 29	76 42 12	BFL	RAPPAHANNOCK	LOWER RAPPAHANNOCK	2080104	RUNOFF GAUGING SITE

NOMINI CREEK WATERSHED MONITORING STATIONS



OWL RUN WATERSHED MONITORING PROGRAM

PROGRAM DESCRIPTION: The Owl Run Watershed Monitoring Program is conducted at four surface runoff stations, various biological stations above and below each surface runoff station, eight rainfall gauges, and one weather station in the 2800 acre watershed. Surface stations are sampled weekly and during storm events, biological stations are sampled monthly, and rainfall and weather are sampled on a continuous basis.

This program is designed to monitor the effect of Best Management Practices (BMPs) on the water quality of runoff draining from dairy operations in this small watershed in Fauquier County, Virginia. The monitoring schedule includes an initial period of sampling to collect baseline data, followed by the installation of BMPs and continued monitoring. Installation of BMPs are encouraged through an incentive program. Some groundwater monitoring is also conducted as a part of this BMP effectiveness monitoring.

PROGRAM OBJECTIVES: To evaluate the effectiveness of animal waste BMPs in improving the water quality of affected streams, and to establish a database for nonpoint source modeling.

DATE INITIATED: December 1985

COORDINATING AGENCY:

Virginia Department of Conservation and Historical Resources
Division of Soil and Water Conservation
203 Governor Street, Suite 206
Richmond, Virginia 23219-2094

FUNDING AGENCY:

Commonwealth of Virginia
U.S. EPA Region III

PARTICIPATING AGENCY:

Virginia Department of Conservation and Historical Resources (DCHR)
Virginia Polytechnic Institute and State University (VPI&SU)

INVESTIGATORS:

Project Officer	J. Michael Flagg	DCHR
Principal Investigator	Saied Mostaghimi	VPI&SU

PARAMETERS:

Surface Runoff Stations:
Water Level
Total Nitrogen
Total Kjeldahl Nitrogen
Nitrate
Ammonia
Total Phosphorus
Total Dissolved Phosphorus
Dissolved Inorganic Phosphorus
Total Suspended Solids
Chemical Oxygen Demand
Total Coliform
Fecal Coliform

Herbicides/Insecticides:
Atrazine
Banvel (Dicamba)
Basagran (bentazon)
Blazer (aciflourfen)
Disyston (disulfoton)
Dual (metachlor)
Furadan (carbofuran)

Fusilade (fluazifor-butyl)
Lasso (alachlor)
Lexone (metribuzin)
Lorox (linuron)
Malathion (malathion)
Paraquat
Poast (sethoxydim)
Pounce (permethrin)
Pydrin (fenvalerate)
Princep
Roundup (glyphosate)
Sevin (carbaryl)
Sticker
Surflan (oryzalin)
Toxphene
Treflan (trifluralin)
2,4-D

Biological Stations:
Algae Population

Macroinvertebrates:
Taxa Identification
Taxa Abundance

Weather Station:
Evaporation
Humidity
Solar Radiation
Wind Direction
Wind Speed

STATIONS: There are four surface runoff stations, various biological stations located above and below each surface runoff station, eight rainfall gauges, and one weather station in this 2800 acre watershed.

SAMPLE COLLECTION: Continuous hydrologic data are gathered at four fully automated runoff stations and at eight rainfall gauging stations. Water quality samples for dry weather nutrient analysis (baseflow) are collected weekly. Discrete sampling during wet weather is collected at approximately every 0.2 foot change in water level. Coliforms are collected every two weeks. Pesticide analysis is conducted on surface water samples monthly and on storm runoff samples. Rainfall and climatological data are monitored continuously. Biological samples are collected monthly by sampling the water for algae populations and substrates for protozoans and other related organisms. Standardized substrates are used to allow direct comparisons between stations. Soil cores and ground water are sampled periodically to monitor nutrient movement through the soil column. Land use data will also be collected periodically.

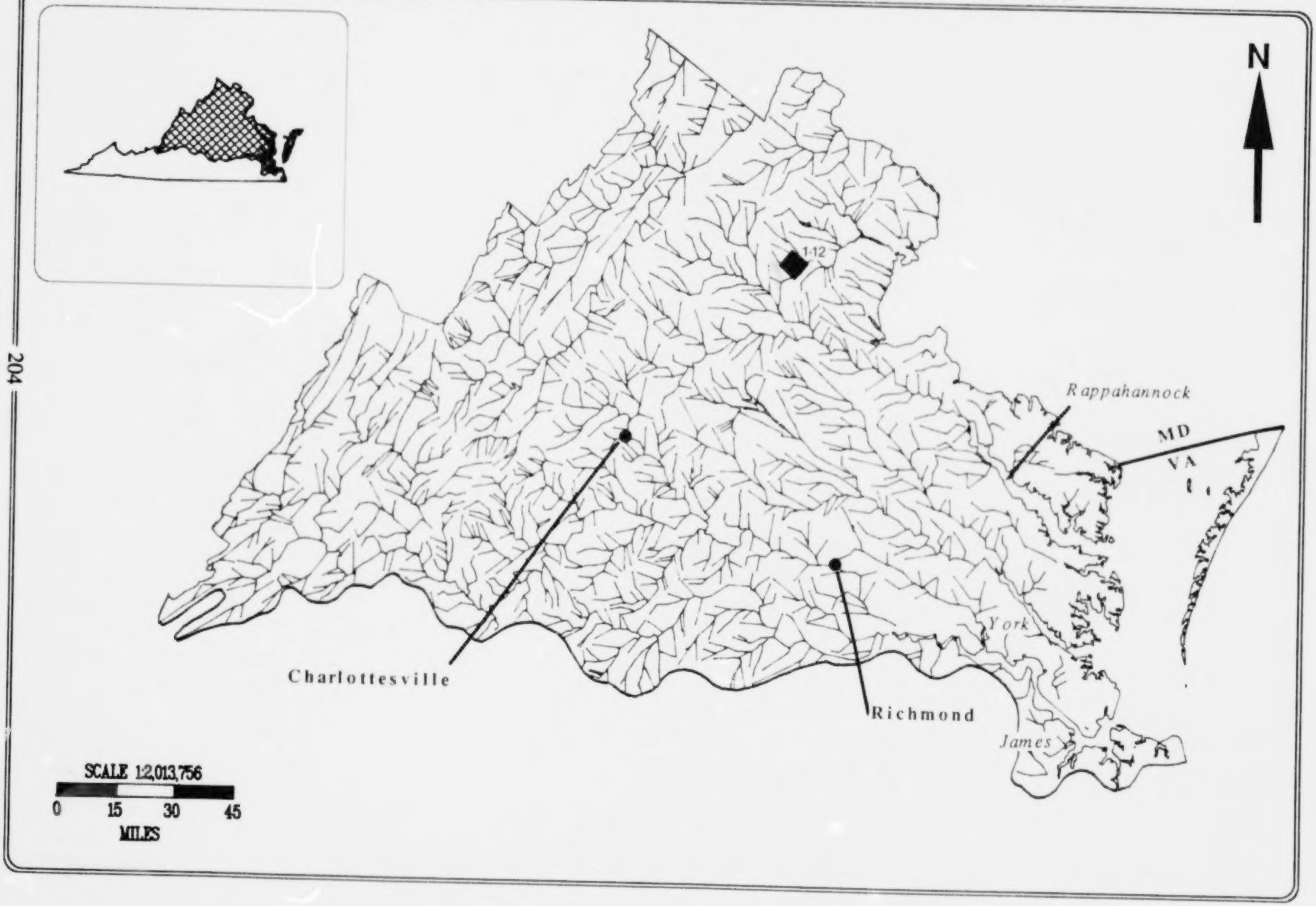
Biological samples are transferred to VPI&SU and analyzed within 24 hours. Water quality samples are stored in a refrigerated sampler at the main station until collected and frozen. Samples from the unrefrigerated sampler at other sites are collected daily and frozen. COD is treated with Sulfuric Acid. All samples are transferred to the Water Quality Laboratory at VPI&SU for analyses which normally occurs 2-3 weeks later.

PROGRAM INTEGRATION: N/A

OWL RUN WATERSHED MONITORING STATIONS

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
1	38 39 30	77 42 36	AFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	RAIN GAUGE
10	38 37 53	77 40 17	AFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	RAIN GAUGE
11	38 37 46	77 40 18	AFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	RAIN GAUGE
12	38 37 30	77 42 22	AFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	RAIN GAUGE
2	38 39 17	77 43 28	AFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	RAIN GAUGE
3	38 38 37	77 41 31	AFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	RAIN GAUGE
4	38 38 24	77 42 36	AFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	RAIN GAUGE
5	38 38 17	77 41 40	AFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	RAIN GAUGE
6	38 38 14	77 41 45	AFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	RUNOFF GAUGE
7	38 38 04	77 40 41	AFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	RUNOFF GAUGE
8	38 37 55	77 40 46	AFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	RAIN GAUGE
9	38 37 57	77 40 18	AFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	RUNOFF GAUGE

OWL RUN WATERSHED MONITORING STATIONS



POTOMAC REGIONAL MONITORING PROGRAM

PROGRAM DESCRIPTION: The Potomac Regional Monitoring Program consists of a network of approximately 50 stations located in the tributaries, embayments and mainstem of the Potomac River from approximately 40 miles above the fall line at Point of Rocks to Point Lookout at its confluence with the Chesapeake Bay. This program is conducted as a cooperative effort between state and local governments and coordinated by the Metropolitan Washington Council of Governments. It was established to provide water quality data which was not available after the termination of both EPA and USGS water quality monitoring programs in the Potomac River.

PROGRAM OBJECTIVES: To provide data on current status and long-term trends in the water quality of the Potomac River.

DATE INITIATED: 1982

COORDINATING AGENCY:

Metropolitan Washington Council of Governments
1875 Eye Street, N.W., Suite 200
Washington, D.C. 20006-5980

FUNDING AGENCIES:

Virginia Water Control Board, Northern Regional Office
Metropolitan Washington Council of Governments
Maryland Department of the Environment
Montgomery County Department of Environmental Protection
Fairfax County Department of Public Works
Fairfax County Water Authority

PARTICIPATING AGENCIES:

District of Columbia Department of Consumer and Regulatory Affairs (DCDCRA)
Fairfax County, Wastewater Treatment Division (FAIRFAX)
Fairfax County Water Authority (FCWA)
Maryland Department of the Environment (MDE)
Metropolitan Washington Council of Governments (MWCOG)
Montgomery County Department of Environmental Protection (MONTCO)
Occoquan Watershed Monitoring Laboratory (OWML)
National Park Service, Center for Urban Ecology (NPS)
Virginia Water Control Board, Northern Regional Office (VWCB)

INVESTIGATORS:

Program Coordinator	Sheila Myers	MWCOG
D.C. Program Chief	Hamid Karimi	DCDCRA
Principal Investigator	Sally Bowen	MDE
Principal Investigator	Cynthia Sale	VWCB
Principal Investigator	Richard Hammerschlag	NPS
Principal Investigator	Kelly Williams	MONTCO
Principal Investigator	Harold Post	OWML
Principal Investigator	Elaine Schaeffer	FAIRFAX

PARAMETERS: *

Water Temperature
Dissolved Oxygen
Specific Conductance
pH
Alkalinity
Secchi Depth
Total Kjeldahl Nitrogen
Nitrate
Nitrite
Nitrate + Nitrite
Ammonium
Total Phosphorus
Total Dissolved Phosphorus
Dissolved Inorganic Phosphorus
Total Organic Carbon
Dissolved Organic Carbon
Dissolved Silica
Total Suspended Solids
Volatile Suspended Solids
Turbidity
Chlorophyll *a*
Phaeophytin *a*
Total Coliform
Fecal Coliform
Chloride
5-day Biological Oxygen Demand
Chemical Oxygen Demand

* Parameters may vary according to agency

STATIONS: Approximately 50 stations are located in the tributaries, embayments and mainstem of the Potomac River from Point of Rocks to Point Lookout approximately 150 miles downstream. Stations vary somewhat as participation in the program from year to year is voluntary.

SAMPLE COLLECTION: All stations are sampled monthly, with selected stations sampled twice monthly from March or April through October and monthly from November through February and certain others sampled weekly. Every effort is made to perform same day sampling on a low slack tide schedule.

Water temperature, dissolved oxygen, conductivity and pH are measured in the field. Samples for laboratory analysis are taken with a bucket, bottle, submersible pump, Van-Dorn sampler or PVC bailer between the surface and 18 inches in depth depending on the agency doing the sampling. Certain stations, again depending on agency, are also sampled at mid-depth and 1 foot to 1 meter above the bottom.

Split sampling is conducted at the Key Bridge (PMS-10) station between DCRA, MDE and VWCB.

In addition to the network of grab sample stations, the Potomac monitoring program also supports the operation of an automated sampling station located on the fall-line at Chain Bridge. This station is operated by the OWML and provides automated storm event sampling capability which allows for more accurate quantification of upstream pollutant loadings.

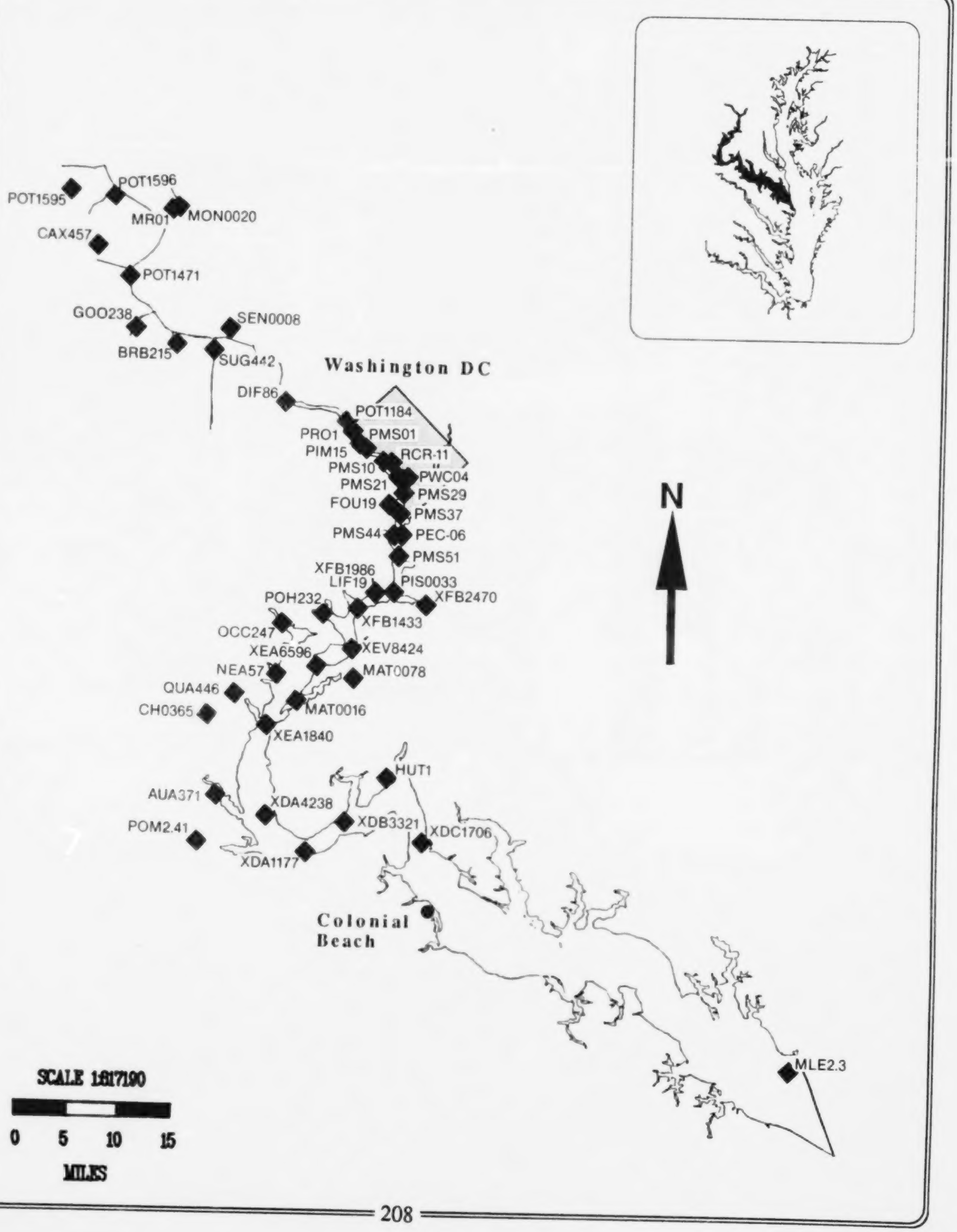
All data is compiled, computerized and stored by MWCOG as part of the Potomac Data Base.

PROGRAM INTEGRATION: This program is a cooperative water quality monitoring effort funded and maintained by participating agencies, and state and local jurisdictions.

POTOMAC REGIONAL MONITORING STATIONS

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
AUA371	38 25 23	77 21 19	RET-2	POTOMAC	LOWER POTOMAC	2070011	AQUIA CREEK
BRB215	39 03 33	77 26 11	AFL	POTOMAC	MIDDLE POTOMAC CATOCTIN	2070008	BROAD RUN
CAX457	39 11 55	77 34 36	AFL	POTOMAC	MIDDLE POTOMAC CATOCTIN	2070008	CATOCTIN CREEK
CH0365	38 31 12	77 21 42	BFL	POTOMAC	LOWER POTOMAC	2070011	CHOPAWAMSIC CREEK
DIF86	38 58 39	77 14 33	AFL	POTOMAC	MIDDLE POTOMAC CATOCTIN	2070008	DIFFICULT RUN
DM01	38 45 35	77 02 47	BFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	DYKE MARSH
FOU19	38 50 29	77 02 47	BFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	FOUR MILE RUN
GOO238	39 04 56	77 30 33	AFL	POTOMAC	MIDDLE POTOMAC CATOCTIN	2070008	GOOSE CREEK
HUT1	38 27 23	77 03 06	BFL	POTOMAC	LOWER POTOMAC	2070011	HUNTING CREEK
LIF19	38 42 46	77 04 29	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	LITTLE HUNTING CREEK
MAT0016	38 33 42	77 13 09	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	MATTAWOMAN EMBAYMENT
MAT0078	38 35 18	77 07 08	BFL	POTOMAC	LOWER POTOMAC	2070011	MATTAWOMAN CREEK
MLE2.3	38 01 17	76 20 53	LE-2	POTOMAC	LOWER POTOMAC	2070011	POINT LOOKOUT
MON0020	39 14 50	77 25 59	AFL	POTOMAC	MONOCACY	2070009	MONOCACY RIVER
MR01	39 14 41	77 26 27	AFL	POTOMAC	MONOCACY	2070009	MONOCACY RIVER @ RT 28
NEA57	38 35 58	77 15 20	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	NEABSCO CREEK
OCC247	38 39 26	77 13 49	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	OCCOQUAN/BELMONT BAY
PEC-06	38 47 40	77 01 41	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	PEC@WILSON BRIDGE
PIM15	38 55 49	77 07 06	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	PIMMIT RUN
PIS0033	38 41 54	76 59 13	BFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	PISCATAWAY CREEK
PMS01	38 55 04	77 06 18	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	FLETCHER'S BOATHOUSE
PMS10	38 54 08	77 04 11	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	UPSTREAM OF KEY BRIDGE
PMS21	38 52 27	77 02 33	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	14TH STREET BRIDGE
PMS29	38 51 01	77 01 21	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	150M DWNSTRM OF BLCK AND RED FL
PMS37	38 49 18	77 01 53	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	100M S OF NAVAL RESEARCH LAB PI
PMS44	38 47 41	77 02 14	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	W. WILSON MEM. BRG./50M UPSTREA
PMS51	38 46 12	77 01 54	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	ACROSS FROM ROSIER BLUFF /100M
POH232	38 40 47	77 10 16	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	POHICK/GUNSTON COVE
POM2.41	38 21 24	77 23 45	BFL	POTOMAC	LOWER POTOMAC	2070011	POTOMAC CREEK
POT1184	38 56 53	77 07 39	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	LITTLE FALLS
POT1471	39 09 16	77 31 18	AFL	POTOMAC	MIDDLE POTOMAC CATOCTIN	2070008	POTOMAC R. TERMINUS OF WHITES F
POT1595	39 16 24	77 37 38	AFL	POTOMAC	MIDDLE POTOMAC CATOCTIN	2070008	POINT OF ROCKS EAST
POT1596	39 16 24	77 32 53	AFL	POTOMAC	MIDDLE POTOMAC CATOCTIN	2070008	POTOMAC R. VA SIDE PT OF ROCKS
PR01	38 55 46	77 07 01	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	CHAIN BRIDGE
PWC04	38 52 25	77 01 21	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	WASH. CHAN./100M W OF N SIDE OF
QUA446	38 33 56	77 19 45	BFL	POTOMAC	LOWER POTOMAC	2070011	QUANTICO CREEK
RCR-11	38 54 02	77 03 25	AFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	ROCK CREEK AT K STREET
RWCC	39 03 56	77 14 50	AFL	POTOMAC	MIDDLE POTOMAC CATOCTIN	2070008	INTAKE AT SENECA POOL
SEN0008	39 04 46	77 20 24	AFL	POTOMAC	MIDDLE POTOMAC CATOCTIN	2070008	SENECA CREEK
SUG442	39 03 13	77 21 47	AFL	POTOMAC	MIDDLE POTOMAC CATOCTIN	2070008	SUGARLAND RUN
XDA1177	38 21 07	77 12 17	RET-2	POTOMAC	LOWER POTOMAC	2070011	MARYLAND POINT
XDA4238	38 24 12	77 16 10	RET-2	POTOMAC	LOWER POTOMAC	2070011	SMITH POINT
XDB3321	38 23 17	77 07 51	RET-2	POTOMAC	LOWER POTOMAC	2070011	NANJEMOY CREEK
XDC1706	38 21 45	76 59 27	RET-2	POTOMAC	LOWER POTOMAC	2070011	ROUTE 301 BRIDGE
XEA1840	38 31 52	77 15 57	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	POSSUM POINT
XEA6596	38 36 29	77 10 27	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	POTOMAC INDIAN HEAD
XEV8424	38 37 51	77 07 24	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	HALLOWING POINT
XFB1433	38 41 17	77 06 31	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	DOGUE CREEK
XFB1986	38 42 30	77 02 38	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	PISCATAWAY @ FT. WASH.
XFB2470	38 42 40	77 02 39	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	POTOMAC R MIDC OFF PIS. CR BE C

POTOMAC REGIONAL MONITORING STATIONS



COORDINATED ANACOSTIA MONITORING PROGRAM

PROGRAM DESCRIPTION: The Coordinated Anacostia Monitoring Program consists of a network of approximately 42 stations located in the Anacostia River and its tributaries. This program is conducted as a cooperative effort between state and local governments and coordinated by the Metropolitan Washington Council of Governments.

PROGRAM OBJECTIVES: To provide data on current status and long-term trends in water quality of the Anacostia River.

DATE INITIATED: 1985

COORDINATING AGENCY:

Metropolitan Washington Council of Governments
1875 Eye Street, N.W., Suite 200
Washington, D.C. 20006-5980

FUNDING AGENCIES:

Metropolitan Washington Council of Governments
Maryland Department of the Environment
Maryland National Capitol Parks & Planning Commission
Prince Georges County
Montgomery County

PARTICIPATING AGENCIES:

District of Columbia Department of Consumer and Regulatory Affairs (DCDCRA)
Maryland Department of the Environment (MDE)
Metropolitan Washington Council of Governments (MWCOG)
Montgomery County Department of Environmental Protection (MONTCO)
Prince Georges County Health Department (PGHD)

INVESTIGATORS:

Program Coordinator	Sheila Myers	MWCOG
D.C. Program Chief	Hamid Karimi	DCDCRA
Principal Investigator	Sally Bowen	MDE
Principal Investigator	Cameron Weigard	MONTCO
Principal Investigator	Lane Johnson	PGHD

PARAMETERS: *

Water Temperature
Dissolved Oxygen
Specific Conductivity
pH
Alkalinity
Secchi Depth
Total Kjeldahl Nitrogen
Nitrate

Nitrite
Nitrate + Nitrite
Ammonium
Total Phosphorus
Total Dissolved Phosphorus
Dissolved Inorganic Phosphorus
Total Organic Carbon
Dissolved Silica

Total Suspended Solids
Volatile Suspended Solids
Turbidity
Chlorophyll *a*
Phaeophytin *a*
Total Coliform
Fecal Coliform
Chloride
5-day Biological Oxygen Demand
Chemical Oxygen Demand

* Parameters may vary according to agency.

STATIONS: There are approximately 42 stations located along the Anacostia River, from the upper reaches of its tributaries to its confluence with the Potomac River. Stations vary somewhat as participation in the program from year to year is voluntary.

SAMPLE COLLECTION: Stations are sampled monthly, with selected stations sampled twice a month from March to October. Water temperature, dissolved oxygen, conductivity and pH are measured in the field. Samples for lab analysis are taken with a bucket, bottle, submersible pump, Van-Dorn sampler or PVC bailer between the surface and 18 inches in depth, depending on the agency. Certain stations (again depending on agency) are also sampled at mid-depth and 1 foot to 1 meter above the bottom. Every effort is made to perform same day sampling.

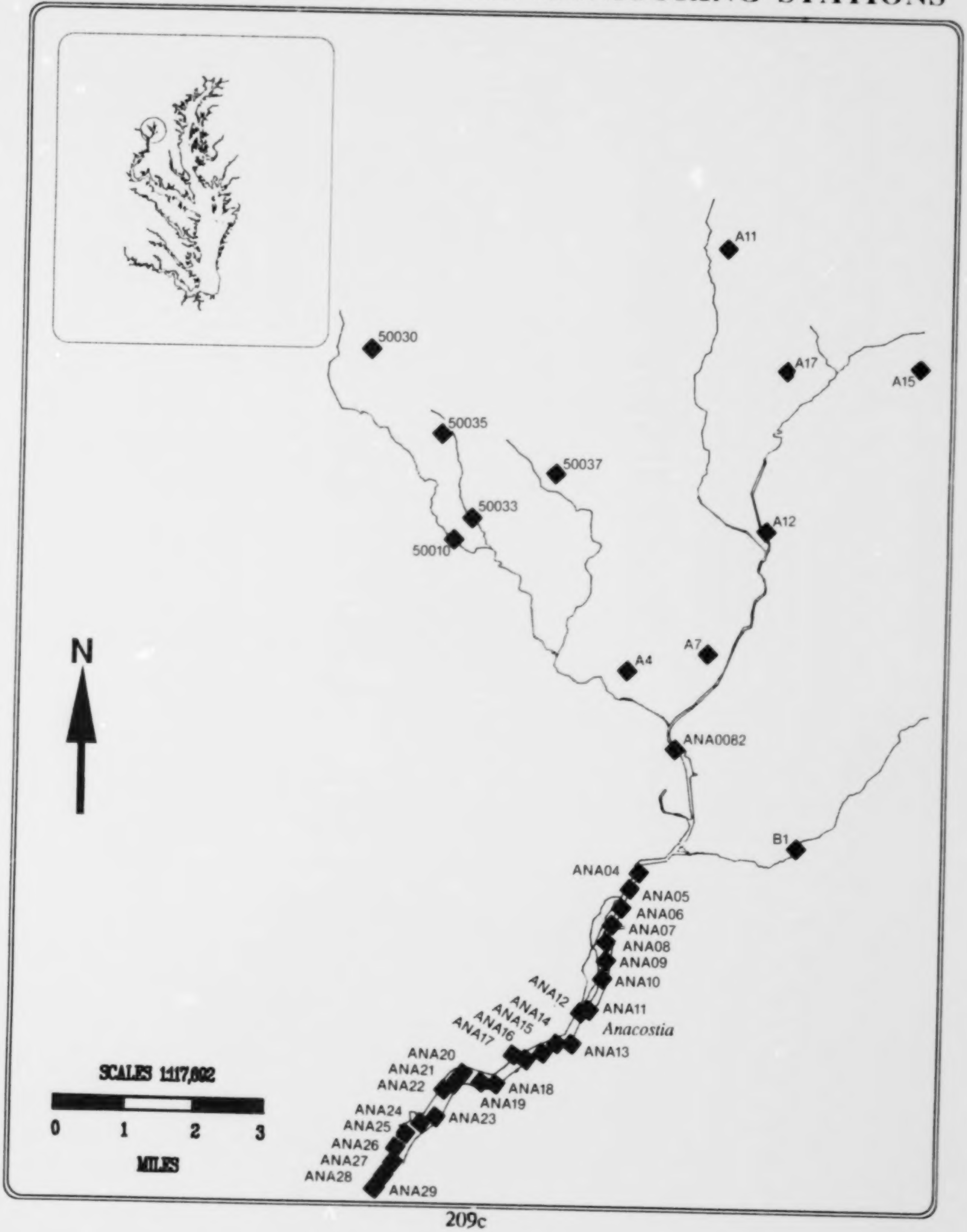
All data is compiled, computerized and stored by MWCOG as part of the Potomac Data Base.

PROGRAM INTEGRATION: This program is a cooperative water quality monitoring effort funded and maintained by participating agencies and local jurisdictions.

COORDINATED ANACOSTIA MONITORING STATIONS

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
50010	38 59 00	77 00 02	AFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	SLIGO CREEK NEAR WASHINGTON HOS
50030	39 01 27	77 01 17	AFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	SLIGO CR. DENNIS AVE. NR. SLIGO
50033	38 59 15	76 59 45	AFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	LONG BRANCH NEAR CARROLL AVENUE
50035	39 00 20	77 00 12	AFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	LONG BRANCH ABOVE E. WAYNE AVE.
50037	38 59 48	76 58 23	AFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	NORTHWEST BRANCH @ OLD RIGGS RD
A11	39 02 35	76 55 35	BFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	LITTLE PAINT BRANCH AT BELTSVIL
A12	38 59 00	76 55 03	BFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	INDIAN CREEK AT GREENBELT ROAD
A15	39 01 00	76 52 32	BFL	PATUXENT	PATUXENT	2060006	BEAVERDAM CREEK AT RESEARCH ROA
A17	39 01 00	76 54 40	BFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	INDIAN CREEK AT SUNNYSIDE ROAD
A4	38 57 20	76 57 19	BFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	NW R. AT WUEEN'S CHAPEL RD.
A7	38 57 30	76 56 00	BFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	NORTHEAST BRANCH AT RIVERDALE R
ANA0082	38 56 19	76 56 37	BFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	BLADENSBURG ROAD (TIDAL BOUNDAR
ANA01	38 55 05	76 56 31	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	NY AVE. BRIDGE/50M UPSTREAM OF
ANA02	38 54 56	76 56 44	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	AQUATIC GARDENS N/MIDDLE R BEND
ANA03	38 54 53	76 57 01	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	AQUATIC GARDENS INLET/UPSTREAM
ANA04	38 54 46	76 57 12	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	ARBORETUM/200M DOWNSTREAM OF RI
ANA05	38 54 33	76 57 22	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	HICKEY HILL/200M UPSTREAM OF HI
ANA06	38 54 20	76 57 30	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	KINGMAN LAKE/DOWNSTREAM SIDE
ANA07	38 54 07	76 57 38	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	UPSTREAM OF BENNING RD PEPCO PO
ANA08	38 53 55	76 57 45	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	BENN ROAD POWER PLANT/SOUTHERN
ANA09	38 53 42	76 57 45	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	KINGMAN ISLAND/ACROSS FROM GAZE
ANA10	38 53 27	76 57 48	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	UPSTREAM OF EAST CAPITAL STREET
ANA11	38 53 02	76 58 09	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	KINGMAN ISLAND S AT DAYMARKER #
ANA12	38 53 02	76 58 09	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	KINGMAN LAKE OUTLET/UPSTREAM SI
ANA13	38 52 38	76 58 20	BFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	RAILROAD BRIDGE/50M DOWNSTREAM
ANA14	38 52 38	76 58 33	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	PENNSYLVANIA AVE./MARINA S DOCK
ANA15	38 52 33	76 58 50	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	PENNSYLVANIA AVE. S/100M DOWNST
ANA16	38 52 27	76 59 06	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	ANACOSTIA PARK POOL ACROSS FROM
ANA17	38 52 30	76 59 19	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	11TH STREET BRIDGE ON UPSTREAM
ANA18	38 52 11	76 59 34	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	NAVY YARD E./200M WEST OF 11TH
ANA19	38 52 13	76 59 49	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	NAVY YARD/ACROSS FROM EAST PIER
ANA20	38 52 17	77 00 05	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	NAVY YARD W/NEXT TO WEST PIER
ANA21	38 52 10	77 00 18	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	100M N. OF SOUTH CAPITAL STREET
ANA22	38 51 66	77 00 26	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	300M S. OF SOUTH CAPITAL STREET
ANA23	38 51 47	77 00 34	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	BUZZARD PT POWER PLANT/BTW FL #
ANA24	38 51 40	77 00 47	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	BUZZARD PT MARINA/SOUTH OF EAST
ANA25	38 51 32	77 01 02	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	GREENLEAF POINT/APPROX 100M S O
ANA26	38 51 22	77 01 10	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	WASH CHANNEL/200M S. OF RED AND
ANA27	38 51 10	77 01 15	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	HAINS POINT/100M NORTH OF NUN #
ANA28	38 51 02	77 01 21	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	POTOMAC CONFLUENCE
ANA29	38 51 02	77 01 21	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	AT RED AND GREEN FLASHER/POTOMA
B1	38 55 00	76 54 40	BFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	LOWER BEAVERDAM CREEK AT DC BOR

COORDINATED ANACOSTIA MONITORING STATIONS



CHESAPEAKE BAY CITIZEN MONITORING PROGRAM

PROGRAM DESCRIPTION: The Chesapeake Bay Citizen Monitoring Program was initiated to assist managers in detecting and assessing long-term ecological trends for the near-shore habitat of the Bay. The program has also served to demonstrate that volunteers can collect reliable water quality data.

PROGRAM OBJECTIVES: To augment data collected through Chesapeake Bay Program Monitoring by providing for a significant increase in the geographic range and scope of coverage of the overall monitoring program into important nearshore living resource habitats.

DATE INITIATED: July 1985

COORDINATING AGENCY:

Alliance for the Chesapeake Bay
6600 York Road
Baltimore, Maryland 21212

FUNDING AGENCY: U.S. EPA Chesapeake Bay Liaison Office

PARTICIPATING AGENCIES:

Alliance for the Chesapeake Bay (ACB)
Maryland Department of Natural Resources (MDDNR)
U.S. EPA Chesapeake Bay Liaison Office (CBLO)
Virginia Water Control Board (VWCB)
Virginia Council on the Environment (VCE)
National Oceanic and Atmospheric Administration (NOAA)

INVESTIGATORS:

Program Coordinator	Kathleen Ellett	ACB
Investigators	Participating Citizens	

PARAMETERS:

James, Patuxent, Middle, Severn and Choptank Rivers:
Temperature
Dissolved Oxygen
Specific Density
Salinity
pH
Secchi Depth
Hardness (Choptank)
Ammonia (James)

Conestoga River:
Temperature
Dissolved Oxygen
Nitrate
Turbidity

STATIONS: There are 15 locations on the James, 19 locations on the Patuxent, two locations each on the Middle and the Severn, 9 locations on the Conestoga and 1 location on the Choptank.

SAMPLE COLLECTION: Sampling is conducted weekly. Monitors obtain a surface water sample with a bucket from the shore or dock, mostly on their own property. Dissolved oxygen is determined by using a micro Winkler titration kit, pH and nitrate nitrogen are determined using a color comparison kit, and turbidity is determined using a visual comparison kit. In addition to the parameters listed, weather conditions and general ecological observations are recorded.

PROGRAM INTEGRATION: This program is designed to augment state supported water quality monitoring performed in Maryland and Virginia. It was previously coordinated with a citizen's monitoring program at the Maryland Department of Natural Resources which may be resumed in the future.

CITIZEN MONITORING STATIONS FOR THE CONESTOGA RIVER

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
C1	40 09 12	76 07 42	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	HINKLETOWN, PA
C10	39 57 46	76 21 55	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	ROCKHILL DAM, PA
C11	39 56 19	76 23 16	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	SAFE HARBOR, PA
C3	40 07 14	76 12 50	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	BROWNSTOWN, PA
C4	40 04 12	76 15 45	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	EDEN, PA
C5	40 02 54	76 16 40	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	GROFFTOWN RD, PA
C7	40 00 24	76 18 10	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	LANCASTER SOUTH, PA
C8	39 59 59	76 18 21	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	LYNDON, PA
C9	39 58 54	76 21 30	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	SLACKWATER, PA

CITIZEN MONITORING STATIONS FOR THE CHOPTANK RIVER

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
CH1	38 35 50	76 10 00	BFL	EASTERN SHORE	CHOPTANK	2060005	GARDEN OF EDEN

CITIZEN MONITORING STATIONS FOR THE JAMES RIVER

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
J22	37 11 42	76 37 22	LE-5	JAMES	LOWER JAMES	2080206	CARTERS GROVE, VA
J23	37 14 18	76 48 41	RET-5	JAMES	LOWER JAMES	2080206	FIRST COLONY, VA
J27	37 22 56	77 22 20	TF-5	JAMES	LOWER JAMES	2080206	DUTCH GAP, VA
J28	37 17 55	77 12 10	TF-5	JAMES	LOWER JAMES	2080206	WEST BANK-TAR BAY, VA
J29	37 14 01	76 55 02	BFL	JAMES	LOWER JAMES	2080206	DANCING POINT, VA
J30	37 18 37	77 09 26	TF-5	JAMES	LOWER JAMES	2080206	WESTOVER, VA
J31	37 24 00	77 17 30	BFL	JAMES	LOWER JAMES	2080206	DEEP BOTTOM, VA
J32	36 58 57	76 37 44	BFL	JAMES	LOWER JAMES	2080206	SMITHFIELD, VA
J34	36 54 25	76 26 53	LE-5	JAMES	LOWER JAMES	2080206	TCC - PIG POINT, VA
J35	37 31 35	77 27 50	AFL	JAMES	MIDDLE JAMES-WILLIS	2080205	JAMES RIVER PARK, VA
J36	37 33 45	77 32 30	AFL	JAMES	MIDDLE JAMES-WILLIS	2080205	HUGUENOT BRIDGE, VA
J37	37 01 55	76 28 45	LE-5	JAMES	LOWER JAMES	2080206	HILTON PIER, VA
J38	36 58 15	76 34 30	BFL	JAMES	LOWER JAMES	2080206	TOWN FARM CREEK, VA
J39	37 18 30	77 13 30	TF-5	JAMES	LOWER JAMES	2080206	JORDON POINT, VA
J40	37 31 10	77 36 25	AFL	JAMES	MIDDLE JAMES-WILLIS	2080205	DEEP WATER TERMINAL, VA

CITIZEN MONITORING STATIONS FOR THE MIDDLE RIVER

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
M1	39 18 30	76 24 55	WT-3	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	WILSON POINT, MD
M2	39 19 00	76 24 10	WT-3	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	MARYLAND MARINA, MD

CITIZEN MONITORING STATIONS FOR THE PATUXENT RIVER

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
P1	38 30 33	76 40 45	BFL	PATUXENT	PATUXENT	2060006	BENEDICT, MD
P10	38 36 10	76 40 10	BFL	PATUXENT	PATUXENT	2060006	HOLLAND CLIFF, MD
P11	38 23 44	76 29 00	BFL	PATUXENT	PATUXENT	2060006	ST. LEONARDS CREEK, MD
P12	38 24 50	76 36 27	LE-1	PATUXENT	PATUXENT	2060006	CAPE ST. MARY'S, MD
P13	38 24 03	76 28 20	BFL	PATUXENT	PATUXENT	2060006	OSBORN COVE, MD
P14	38 19 45	76 26 36	BFL	PATUXENT	PATUXENT	2060006	SPRING COVE-MILL CRK, MD
P15	38 34 36	76 40 23	BFL	PATUXENT	PATUXENT	2060006	POTTS POINT, MD
P16	38 39 22	76 41 00	BFL	PATUXENT	PATUXENT	2060006	LOWER MARLBORO, MD

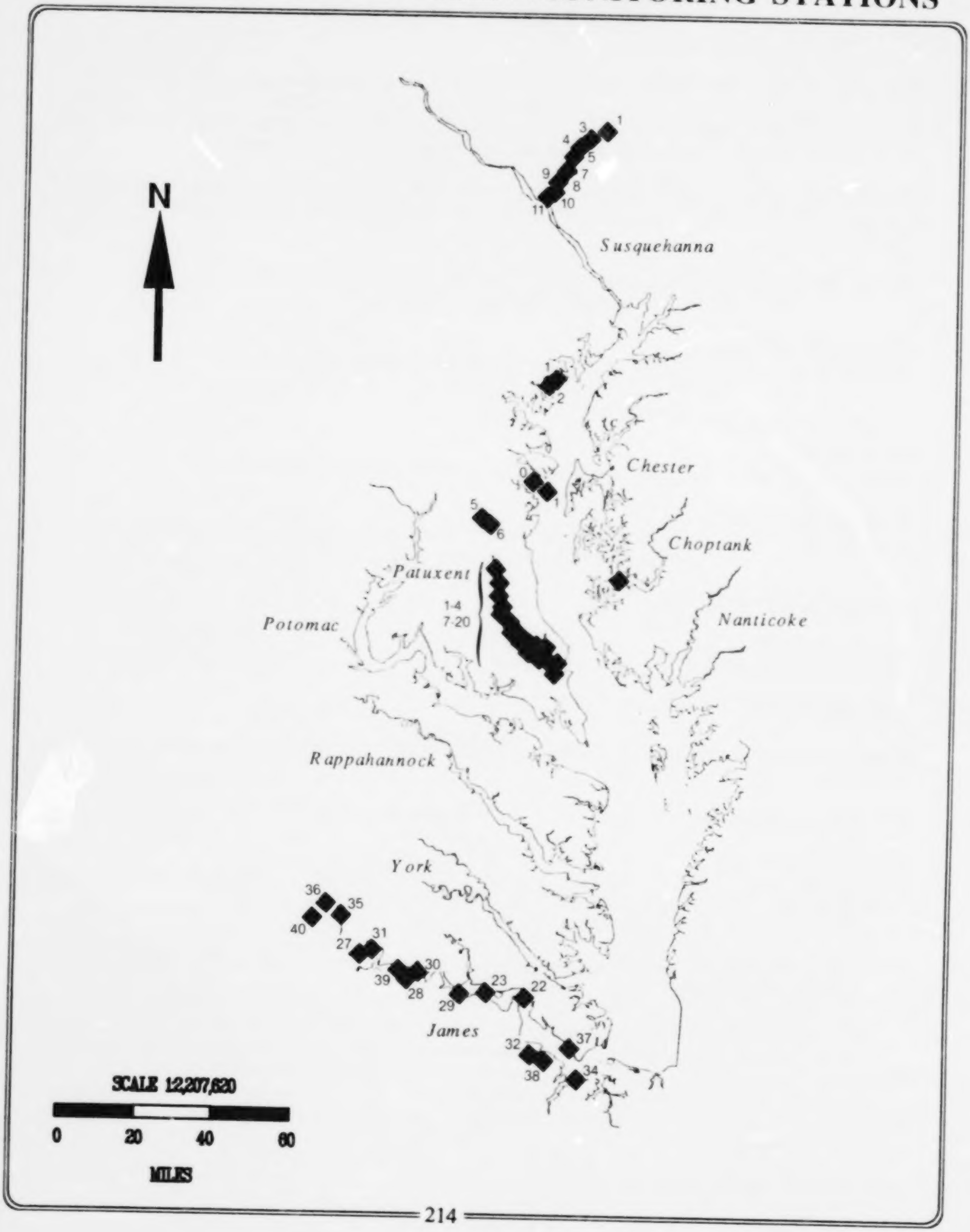
CITIZEN MONITORING STATIONS FOR THE PATUXENT RIVER (Cont'd)

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
						2060006	KINGSTON HALL, MD
P17	38 19 23	76 29 38	LE-1	PATUXENT	PATUXENT	2060006	TRENT HALL, MD
P18	38 28 14	76 39 50	BFL	PATUXENT	PATUXENT	2060006	GREEN HOLLY POND, MD
P19	38 17 48	76 27 40	LE-1	PATUXENT	PATUXENT	2060006	CUCKOLD CREEK, MD
P2	38 20 38	76 30 05	BFL	PATUXENT	PATUXENT	2060006	BATTLE CREEK, MD
P20	38 27 47	76 35 51	BFL	PATUXENT	PATUXENT	2060006	CREMONA, MD
P4	38 27 25	76 39 20	LE-1	PATUXENT	PATUXENT	2060006	RT. 4 BRIDGE, MD
P5	38 47 45	76 44 00	BFL	PATUXENT	PATUXENT	2060006	JUG BAY, MD
P6	38 46 50	76 42 30	BFL	PATUXENT	PATUXENT	2060006	ST. CUTHBERT, MD
P7	38 21 47	76 30 44	LE-1	PATUXENT	PATUXENT	2060006	SOTTERLEY COVE, MD
P8	38 22 44	76 31 53	LE-1	PATUXENT	PATUXENT	2060006	ISLAND CREEK, MD
P9	38 25 22	76 32 20	BFL	PATUXENT	PATUXENT		

CITIZEN MONITORING STATIONS FOR THE SEVERN RIVER

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
S0	38 58 02	76 29 00	BFL	WEST CHESAPEAKE	SEVERN	2060004	ANNAPOLIS CITY MARINA, MD
S1	38 56 15	76 27 05	CB-4	CHESBAY	UPPER CHESAPEAKE BAY	2060001	TOLLEY POINT, MD

CHESAPEAKE BAY CITIZEN MONITORING STATIONS



NEW YORK POINT SOURCE COMPLIANCE MONITORING PROGRAM

PROGRAM DESCRIPTION: The New York Point Source Compliance Monitoring Program involves annual sampling at each major facility in the state, and less frequent sampling on a rotating basis covering all facilities within a three to four year period. Municipal and industrial facilities are handled by different units within the Department of Environmental Conservation.

PROGRAM OBJECTIVES: To ensure compliance with State Pollution Discharge Elimination Systems (SPDES) permits as part of the larger goal of restoring all New York waters to a fishable, swimmable state.

DATE INITIATED: 1972 (prior sampling as part of different programs; toxics sampling initiated in 1984)

COORDINATING AGENCY:

New York Department of Environmental Conservation
6274 East Avon-Lima Road
Avon, New York 14414

FUNDING AGENCY: New York Department of Environmental Conservation

PARTICIPATING AGENCIES:

New York Department of Environmental Conservation (NYDEC)
New York State Department of Health (NYDH)

INVESTIGATORS:

Regional Water Engineer	Frank Ricotta	NYDEC - Region 8
Pegional Water Engineer	Lee Flocke	NYDEC - Region 7

PARAMETERS:

Parameters vary in accordance with individual NPDES permit requirements. Typical parameters are as follows:

Carbonaceous Biochemical Oxygen Demand
Ultimate Oxygen Demand
Suspended Solids
Fecal Coliform
Dissolved Oxygen
pH
Settleable Solids
Chlorine Residual
Various Toxics

STATIONS: Major and minor industrial and municipal facilities throughout New York's Susquehanna River Basin.

SAMPLE COLLECTION: Each major industrial and municipal facility is usually sampled by the state at least once a year according to permit, with various reconnaissance inspections (no sampling) performed throughout the year. Composite samples are taken in accordance with the facility's specifications. Minors are sampled on a rotating basis. All minors in the region should be sampled within a three to four year timeframe. Commercial and institutional facilities are sampled on an irregular, as-needed basis.

PROGRAM INTEGRATION: N/A

PENNSYLVANIA POINT SOURCE INSPECTION MONITORING PROGRAMS

PROGRAM DESCRIPTION: The Pennsylvania Point Source Inspection Monitoring Programs are conducted at approximately 5000 inspectable facilities, about half of which are located in the Chesapeake Bay basin. Every effort is made to inspect every permitted facility at least once per year, with the highest priority given to emergency situations, complaints by the public, enforcement support and inspections associated with federal grant requirements. Once these demands are met, routine inspections are conducted (either quarterly, semi-annually or annually) based on volume of discharge, characteristics of discharge, uses of the receiving waters, reliability of the facility's management and operating staff and public concern.

Reconnaissance Inspections are conducted to evaluate compliance status. Generally this involves observation of all treatment facilities and discharges, field tests of the effluent, and collection of grab samples. Pennsylvania's NPDES permits contain instantaneous maximum effluent limits for nearly every parameter to provide a basis for enforcement action based on grab sample results.

Compliance Evaluation and/or Compliance Sampling Inspections are conducted on all major dischargers (approximately 400 statewide and 119 in the Chesapeake Bay basin). These are more detailed than reconnaissance inspection in part because they involve composite as well as grab samples.

Performance Audit Inspections are conducted in instances where the Discharge Monitoring Report quality assurance studies show poor performance by the discharger's laboratory. These inspections are performed in addition to any routine inspections.

PROGRAM OBJECTIVES: To insure facility compliance with applicable laws, rules, regulations and permit standards, particularly effluent limitations. To build a long-term effluent quality history as well as to determine immediate compliance.

DATE INITIATED: 1971 [This program was in operation prior to this date under the Department of Health, Bureau of Sanitary Engineering.]

COORDINATING AGENCY:

Pennsylvania Department of Environmental Resources
Bureau of Water Quality Management
Division of Permits and Compliance
P.O. Box 2063
Harrisburg, Pennsylvania 17120

FUNDING AGENCY:

Pennsylvania Department of Environmental Resources
U.S. EPA Region III

PARTICIPATING AGENCIES:

Pennsylvania Department of Environmental Resources (PADER)
U.S. EPA Region III (USEPA)

INVESTIGATORS:

Director - BWQM	Daniel Drawbaugh	PADER
Division Chief	Cedric Karper	PADER
Section Chief	Kenneth Okorn	PADER

PARAMETERS:

Parameters vary in accordance with individual NPDES requirements. Typical requirements are as follows:

pH
Phosphorus
Ammonium
Total Suspended Solids
Biological Oxygen Demand
Chemical Oxygen Demand
Flow
Fecal Coliform

Toxic parameters can be included in both sewage and industrial waste permits as necessary.

STATIONS: There are approximately 5000 inspectable facilities with about 400 of these considered majors. 119 majors are located within the Chesapeake Bay basin.

SAMPLE COLLECTION: Effluent samples are typically collected at the wastewater treatment plant discharge or at the end of the pipe. Grab samples and/or composite sampling is performed. Effluent samples up and down stream may be performed if necessary. Inspections which result in determinations of non-compliance may lead to the performance of a benthic macroinvertebrate survey to determine stream damage.

PROGRAM INTEGRATION: Other types of facilities are also inspected, such as facilities with spray field discharges.

MARYLAND INDUSTRIAL COMPLIANCE MONITORING PROGRAM

PROGRAM DESCRIPTION: The Maryland Industrial Compliance Monitoring Program is designed to ensure that industrial facilities are meeting the requirements of their NPDES discharge permits. All major and approximately 30 minor facilities are monitored annually. Facilities are categorized according to their EPA designation.

PROGRAM OBJECTIVES: To ensure that all discharge permit requirements are being met and that the permit meets the demands of the facility.

DATE INITIATED: 1974

COORDINATING AGENCY:

Maryland Department of the Environment
Hazardous and Solid Waste Management Administration
Industrial Discharge Program
2500 Broening Highway
Baltimore, Maryland 21224

FUNDING AGENCIES:

Maryland Department of the Environment
U.S. EPA Region III

PARTICIPATING AGENCIES: Maryland Department of the Environment (MDE)

INVESTIGATORS:

Program Administrator	John Veil	MDE
Division Chief	Melvin Knott	MDE

PARAMETERS:

Parameters vary in accordance with individual NPDES permit requirements. Typical parameters are as follows:

pH
Total Suspended Solids
Biological Oxygen Demand
Chlorine
Oil and Grease
Metals
Organics

STATIONS: There are approximately 600 permitted facilities in the state, 57 of which are majors and approximately 550 of which are minors.

SAMPLE COLLECTION: All majors are monitored each year and about 30 of the minors are monitored each year on a rotating basis. Type of sampling (composite or grab) and parameters tested for are in accordance with permit specifications.

PROGRAM INTEGRATION: The Maryland NPDES Enforcement Program receives a copy of each report.

MARYLAND MUNICIPAL COMPLIANCE SAMPLING AND MONITORING PROGRAM

PROGRAM DESCRIPTION: The Maryland Municipal Point Source Compliance Program entails taking yearly composite samples of effluent at all major municipal sewage facilities in the state, and either monthly, quarterly or seasonal grab samples of effluent at all non-major sewage facilities.

PROGRAM OBJECTIVES: To monitor municipal sewage facilities for compliance with NPDES permits.

DATE INITIATED: 1972 (prior monitoring conducted in different format)

COORDINATING AGENCY:

Maryland Department of the Environment
Water Management Administration
Water Quality Monitoring Division
416 Chinquapin Round Road
Annapolis, Maryland 21401

FUNDING AGENCY: Maryland Department of the Environment

PARTICIPATING AGENCY: Maryland Department of the Environment (MDE)

INVESTIGATORS:

Division Chief	Morris Hennessey	MDE

PARAMETERS:

Only Major Facilities:
Temperature
Conductivity
Salinity

All Facilities:
pH
Dissolved Oxygen
Chlorine
Biological Oxygen Demand
Total Suspended Solids
Total Coliform
Total Fecal Coliform
Dissolved Inorganic Phosphorus

Specified Facilities:
Nitrate
Nitrite
Ammonia
Total Kjeldahl Nitrogen
Total Phosphorus

STATIONS: There are 341 municipal sewage plants in the state and slightly fewer in the Chesapeake Bay basin. Thirty-five of these are majors.

SAMPLE COLLECTION: Grab samples are taken at each municipal sewage plant in the state on either a monthly, quarterly or seasonal basis (such as at a swimming pool or campground) depending on its size or previous problems. Water is tested for pH, DO and chlorine in the field and BOD, TSS, and Total and Fecal Coliform from the samples collected. Certain facilities are also tested for nutrients.

At the 35 major facilities, compliance monitoring is tested by annual composite sampling collected over a time period specified in the facility's permit. Parameters tested are also specified in the permit.

PROGRAM INTEGRATION: N/A

MARYLAND NPDES ENFORCEMENT PROGRAM

PROGRAM DESCRIPTION: The Maryland NPDES Enforcement Program ensures compliance with NPDES permit requirements for major industrial facilities, which are visited at least quarterly for a compliance evaluation and sample inspection, and minor facilities, which are visited either quarterly, semi-annually or annually. All facilities are placed in these respective categories according to their EPA designation based on a point system for quantity and quality of effluent. This program has enforcement capabilities and thus takes action where permit requirements are not met. Actions include civil penalties and/or the institution of a corrective plan.

PROGRAM OBJECTIVES: To ensure compliance with permit conditions and Maryland law regarding water pollution control.

DATE INITIATED: 1974

COORDINATING AGENCY:

Maryland Department of the Environment
Hazardous and Solid Waste Management Administration
Industrial Discharge Enforcement Division
2500 Broening Highway
Baltimore, Maryland 21224

FUNDING AGENCY:

Maryland Department of the Environment
U.S. EPA Region III

PARTICIPATING AGENCIES: Maryland Department of the Environment (MDE)

INVESTIGATORS:

Division Chief	James Metz	MDE
NPDES Enforcement Section Head	John Beazely	MDE

PARAMETERS:

Parameters vary in accordance with individual NPDES permit requirements. Typical parameters are as follows:

pH
Turbidity
Suspended Solids
Oil and grease
Organics
Nutrients
Chlorine
Metals
Biological Oxygen Demand
Chemical Oxygen Demand
Fecal Coliforms

STATIONS: There are approximately 711 permitted facilities in the state, of which approximately 58 are majors and 653 are minors.

SAMPLE COLLECTION: Major industrial facilities are visited at least quarterly for a compliance evaluation and sample inspection. Significant minor facilities (larger ones or those with past problems) are visited quarterly. Other minors are visited on a semi-annual or annual basis. The type (grab or composite) and length of sampling is dependent on the facility's permit.

PROGRAM INTEGRATION: Information is also received from Maryland Industrial Compliance Monitoring Program reports.

HART-MILLER ISLAND POINT SOURCE WATER QUALITY MONITORING PROGRAM

PROGRAM DESCRIPTION: The Hart-Miller Island Water Quality Monitoring Program is performed on elutriate water discharged from the the Hart-Miller dredged material containment facility in accordance with a permit issued by the Maryland Department of the Environment. The Maryland Environmental Service, which operates the facility for the Maryland Port Administrator, is responsible for the water quality monitoring required by the permit. Through it, five discharge points are monitored continuously, daily, weekly and quarterly, a point in the Bay is monitored monthly and quarterly, and exfiltration monitoring wells are sampled monthly. Interior cell water is monitored as required to build a data base to project operational problems and concerns. Testing of dredged material is performed infrequently.

PROGRAM OBJECTIVES: To maintain the water quality required by the State Discharge Permit. To perform the monitoring required by the permit. To build a data base of information and to anticipate operational problems and concerns.

DATE INITIATED: 1984

COORDINATING AGENCY:

Maryland Environmental Service
Engineering Services Division
2020 Industrial Drive
Annapolis, Maryland 21401

FUNDING AGENCY: Maryland Port Administration

PARTICIPATING AGENCY: Maryland Environmental Service (MES)

INVESTIGATORS:

Laboratory Manager	Cecelia Donovan	MES
Field Sampling & Laboratory Analysis	Sherry Mistry	MES
Field Sampling &Laboratory Analysis	Tom Humbles	MES

PARAMETERS:

- pH
- Salinity
- Ammonia
- Total Organic Carbon
- Suspended Solids
- Chlorophyll *a*
- Biological Oxygen Demand
- Chemical Oxygen Demand
- Arsenic
- Barium
- Cadmium
- Chromium
- Cyanide
- Hexavalent Chromium
- Copper
- Iron
- Lead
- Mercury
- Nickel
- Selenium
- Silver
- Zinc

PRIORITY POLLUTANT ORGANICS

Base/Neutral Compounds:
N-Nitrosodimethylamine
Bis (2-Chloroethyl) Ether
1, 3-Dichlorobenzene
1, 4-Dichlorobenzene
1, 2-Dichlorobenzene
Bis (2-Chloroisopropyl) Ether
Hexachloroethane
N-Nitroso-Di-n-Propylamine
Nitrobenzene
Isophorone
Bis (2-Chloroethoxy) Methane
1, 2, 4-Trichlorobenzene
Naphthalene
Hexachlorobutadiene
Hexachlorocyclopentadiene
2-Chloronaphthalene
Acenaphthylene
Dimethyl Phthalate
2, 6-Dinitrotoluene
Acenaphthene
2,4-Dinitrotoluene
Flourene
Benzidine
Pyrene
Butyl Benzyl Phthalate
Benzo (a) Anthracene
3, 3-Dichlorobenzidine
Chrysene
Bis (2-Ethylhexyl) Phthalate
Di-n-Octyl Phthalate
Benzo (a) Pyrene
Indeno (1, 2, 3-cd) Pyrene
Dibenzo (a, h) Anthracene
Benzo (g, h, i) Perylene
Benzo (b=k) Flouranthene

Pesticides:
Aldrin
a-BHC
b-BHC
g-BHC
d-BHC
Chlordane
4,4'-DDT
4, 4'-DDE
4, 4'-DDD
Dieldrin
Endosulfan I
Endosulfan II
Endosulfan Sulfate
Endrin
Endrin Aldehyde
Heptachlor
Heptachlor Epoxide
Toxaphene
PCB-1016
PCB-1221
PCB-1232
PCB-1242
PCB-1248
PCB-1254
PCB-1260

Acid Extractable Compounds:
Phenol
2-Chlorophenol
2-Nitrophenol
2, 4-Dimethylphenol
2, 4-Dichlorophenol
4-Chloro-3-methylphenol
2, 4, 6-Trichlorophenol
2, 4-Dinitrophenol
4-Nitrophenol
2-Methyl-4, 6-dinitrophenol
Pentachlorophenol

Volatile Organic Compounds:
Chloromethane
Bromomethane
Vinyl Chloride
Chloroethatne
Methylene Chloride
Trichlorofluoromethane
1,1-Dichlorethylene
1,1-Dichloroethane
Trans-1, 2-Dichloroethane
Chloroform
1,2-Dichloroethane
1, 1, 1-Trichloroethane
Carbon Tetrachloride
Bromodichloromethane
1, 2-Dichloropropane
Trans-1, 3-Dichloropropylene
Trichloroethylene
Chlorodibromomethane
1, 1, 2-Trichloroethane
cis-1, 3-Dichloropropylene
2-Chloroethylvinyl ether
Bromoform
Tetrachloroethylene
Chlorobenzene
Benzene
Toluene
Ethylbenzene
m-Xylene
(o-+p-) Xylenes

Acute and Chronic Toxicity

STATIONS: There are five discharge monitoring points on the facility, four exfiltration monitoring wells and one point in the Bay.

SAMPLE COLLECTION: Discharge points are monitored continuously, daily, weekly and quarterly for parameters as specified in the discharge permit. The Bay is monitored monthly and quarterly. The exfiltration monitoring wells are sampled monthly. Samples at the discharge points are 8-hour composite samples collected by automatic samplers. Bay samples are collected using a Teflon-lined Nansen Sampler. Bay samples are composites of water from just below the surface, mid-depth and just above the bottom of the channel.

PROGRAM INTEGRATION: Sediment, benthic and finfish monitoring is performed by the Maryland Department of Natural Resources at the Hart-Miller Island facility.

DELAWARE POINT SOURCE COMPLIANCE MONITORING PROGRAMS

PROGRAM DESCRIPTION: The Delaware Point Source Compliance Monitoring Programs involve major municipal and industrial NPDES permitted facilities. In the Compliance Sample Inspection (CSI) a representative sample(s) of every major permittee's effluent is collected and chemically analyzed once per year. The Reconnaissance Inspection Program involves both major and minor facilities. Reconnaissance Inspections (RIs) are conducted every other month at major facilities and a minimum of four times per year at minor facilities with the exception of those facilities exclusively used for cooling water which are sampled a minimum of twice per year. The results of both analyses are used to verify the accuracy of the permittee's self-monitoring program and reports, gather evidence for enforcement proceedings, and determine the quantity and quality of effluents.

PROGRAM OBJECTIVES: To verify permittee compliance with NPDES permits and regulations. To provide technical assistance, and improve permittee performance and data quality. To develop and enhance enforcement information, and maintain a regulatory presence. To respond to citizen complaints and water quality problems.

DATE INITIATED: 1974

COORDINATING AGENCY:

Delaware Department of Natural Resources and Environmental Control
Division of Water Resources
89 Kings Highway, P.O. Box 1401
Dover, Delaware 19903

FUNDING AGENCY:

Delaware Department of Natural Resources and Environmental Control
U.S. EPA Region III

PARTICIPATING AGENCY:

Delaware Department of Natural Resources and Environmental Control (DNREC)

INVESTIGATORS:

Group Leader	Joe Kilby	DNREC

PARAMETERS:

Parameters vary in accordance with individual NPDES permit requirements. Typical parameters are as follows:

- BOD
- TSS
- pH
- Flow
- Total Kjeldahl Nitrogen
- Chlorine
- Fecal Coliform
- Whole Effluent Toxicity
- Metals

STATIONS: There are approximately 35 major facilities and 65 minor facilities. Nine facilities are within the Chesapeake Bay drainage basin.

SAMPLE COLLECTION: Compliance Sampling Inspections (CSIs) are conducted at each major industrial and municipal facility once a year. Prior verbal contact is made with each facility to arrange a mutually agreeable date for the visit. A composite sample of the permittees effluent is collected during the inspection according to permit specifications and this sample is chemically analyzed. All CSIs are performed in accordance with the NPDES Compliance Inspection Manual.

In addition to this, unannounced Reconnaissance Inspections (RIs) are made at each major facility once every other month and a minimum of 4 times per year at minor facilities with the exception of those facilities exclusively used for cooling water which are sampled a minimum of twice per year. During the RI, the inspector performs a visual inspection of the permittee's treatment facilities, effluents, receiving waters and collects grab samples of all discharges.

Compliance Evaluation Inspections, which do not include sampling, are used to follow up on major and/or unresolved problems identified during a CSI (and are conducted annually at specified municipal and wastewater treatment facility).

PROGRAM INTEGRATION: Performance Audit Inspections and Diagnostic Inspections are conducted in conjunction with CSIs, RIs and CEIs and focus on quality assurance of the permittee's self-monitoring program.

DISTRICT OF COLUMBIA POINT SOURCE COMPLIANCE MONITORING PROGRAM

PROGRAM DESCRIPTION: The District of Columbia Point Source Compliance Monitoring Program is designed to ensure that industrial and municipal facilities are meeting the requirements of their NPDES discharge permits. Major and minor facilities are categorized based on EPA criteria. Any enforcement measures needed to be carried out in conjunction with this program are conducted by EPA.

PROGRAM OBJECTIVES: To ensure compliance with NPDES permit conditions and to prevent degradation of the District's water quality from point source discharges.

DATE INITIATED: 1978

COORDINATING AGENCY:

D.C. Department of Consumer and Regulatory Affairs
Environmental Control Division
Water Hygiene Branch
5010 Overlook Avenue, SW
Washington, D.C. 20032

FUNDING AGENCY:

D.C. Department of Consumer and Regulatory Affairs
U.S. EPA Region III

PARTICIPATING AGENCIES: D.C. Department of Consumer and Regulatory Affairs (DCDCRA)

INVESTIGATORS:

Principal Investigator	William Ruby	DCDCRA

PARAMETERS:

Parameters measured vary in accordance with individual NPDES permit requirements. Typical parameters are as follows:

Dissolved Oxygen
Temperature
pH
Phosphorus
Nitrogen
Ammonia
Total Suspended Solids
Fecal Coliform
Chlorine

STATIONS: There are seven major facilities and six minor facilities in the District of Columbia.

SAMPLE COLLECTION: Major facilities are visited every six months and minor facilities are visited once a year unless a problem arises. Samples are taken and parameters tested in accordance with specifications on the individual facility's permit.

PROGRAM INTEGRATION: N/A

VIRGINIA POINT SOURCE COMPLIANCE MONITORING PROGRAM

PROGRAM DESCRIPTION: The Virginia Point Source Compliance Monitoring Program involves various types of inspection although only one, the Virginia Pollutant Discharge Elimination System (VPDES) Permit Program, samples point source dischargers. In this program, all major municipal and industrial dischargers are inspected once a year, minor municipal and industrial dischargers are inspected once every other year, and small industrial and municipal dischargers are inspected once every five years. Sampling during these inspections is conducted on an optional basis. The major focus of this program is on technical and laboratory inspections with sampling occurring only rarely.

PROGRAM OBJECTIVES: To ensure that self-monitoring information is representative and accurate and that obligations under state and federal grant agreements are met. To provide guidance and assistance for operating plan commitments, budgeting and resource requirements. To maintain a regulatory presence.

DATE INITIATED: 1975

COORDINATING AGENCY:

Virginia Water Control Board
2111 North Hamilton Street
Richmond, Virginia 23230

FUNDING AGENCY: Virginia Water Control Board

PARTICIPATING AGENCIES:

Virginia Water Control Board (VWCB)
Virginia Department of Health (VDH)

INVESTIGATORS:

Principal Investigator	Martin Ferguson	VWCB

PARAMETERS:

Parameters vary in accordance with individual NPDES permit requirements. Typical parameters are as follows:

pH
Chlorine
Dissolved Oxygen
Total Suspended Solids
Metals
Toxics

STATIONS: There are 139 major, and 2439 minor industrial and municipal facilities in the state of Virginia. Approximately 75% of these are in the Chesapeake Bay basin.

SAMPLE COLLECTION: Majors are inspected once a year, minors are inspected once every other year and small industrial or municipals are inspected once every five years. Majors are categorized as those with over 1 MGD of effluent, minors have between .04 and 1 MGD of effluent and small facilities are those with between 0.001 and 0.04 MGD of effluent. Sampling during these inspections is conducted on an optional and very infrequent basis. Two types of sampling may be performed; 1) a cursory inspection which usually involves collection of a grab or 24-hour composite sample, and 2) an enforcement (legal) survey of sufficient duration to evaluate the data reported by the discharger for permit limit compliance. Most sampling inspections are of the cursory type and there may be no direct comparisons of the results of these samples to the permitted limitations as far as enforcement actions are concerned. The data obtained, however, are used to assist in evaluating the acceptability of the permittee's self-monitoring data and in determining if there is potential non-compliance with the permitted effluent limitations.

PROGRAM INTEGRATION: The Virginia Point Source Monitoring Program also includes Compliance Inspections, usually performed after significant violations are found, Virginia Pollution Abatement (VPA) inspections, and No Discharge Certificate (NDC) inspections, which are evaluations of facilities that are designed to have no discharge.

WEST VIRGINIA POINT SOURCE COMPLIANCE MONITORING PROGRAM

PROGRAM DESCRIPTION: The West Virginia Point Source Compliance Monitoring Program involves Compliance Sample Inspections (CSIs) and/or Compliance Evaluation Inspections (CEIs), once a year at all major facilities and every three to four months for minor facilities. Classification of facilities is determined by EPA designation. Priorities are placed in areas of large industrial complexes and where data indicate the potential for water quality use-impairment and/or public health problems due to non-compliance discharges.

PROGRAM OBJECTIVES: To examine the viability of the facility's permit application and to ensure compliance with facility's NPDES permit.

DATE INITIATED: 1974

COORDINATING AGENCY:

West Virginia Department of Natural Resources
Division of Water Resources
1201 Greenbrier Street
Charleston, WV 25311

FUNDING AGENCY: West Virginia Department of Natural Resources

PARTICIPATING AGENCIES:

West Virginia Department of Natural Resources (WVDNR)
U.S. EPA Region III (USEPA)

INVESTIGATORS:

Program Supervisor	Mike Zeto	WVDNR
Compliance Monitoring Section Leader	Charlie Moses	WVDNR
Permits Branch Head	Jerry Ray	WVDNR

PARAMETERS:

Parameters vary in accordance with individual NPDES permit requirements. Typical parameters are as follows:

Biological Oxygen Demand
Total Suspended Solids
Fecal Coliform
Total Kjeldahl Nitrogen

All Stations:
pH
Total Suspended Solids

STATIONS: Six major and 132 minor dischargers are located in the West Virginia portion of the Chesapeake Bay basin.

SAMPLE COLLECTION: Majors are sampled a minimum of once a year as part of the Compliance Sample Inspection (CSI). Minors are usually sampled by the district office every three to four months and on an as-needed basis. Those facilities to which a permit is soon to be re-issued or those at which a problem has arisen are given priority for CSIs. Samples are taken according to the specifications on the permit. For most majors this entails a composite sample, although some may be grab samples. Compliance Evaluation Inspections (CEIs), during which sampling is not conducted, are also performed at these facilities.

PROGRAM INTEGRATION: Compliance Evaluation Inspections (CEIs), Performance Audit Inspections (PAIs), and Pre-treatment Reviews are performed in conjunction with the Compliance Inspection Program. The EPA Region III Wheeling Office assists in performance of bioassays and occasionally various other aspects of the program.

MARYLAND STRIPED BASS HABITAT MONITORING PROGRAM

PROGRAM DESCRIPTION: As part of its striped bass monitoring program, the Maryland Department of Natural Resources monitors water quality in the Upper Bay and in the Choptank, Potomac and Nanticoke Rivers yearly in the spring and early summer months.

PROGRAM OBJECTIVES: To examine correlations between resource parameters for the striped bass population (such as relative abundance and condition) and habitat conditions, calibration of juvenile index statistics, and testing of alternative hypotheses.

DATE INITIATED: Spring 1983

COORDINATING AGENCY:
Maryland Department of Natural Resources
Chesapeake Bay Research and Monitoring Division
Tidewater Administration
Tawes State Office Building
Annapolis, Maryland 21401

FUNDING AGENCY: Maryland Department of Natural Resources

PARTICIPATING AGENCIES:
Maryland Department of Natural Resources (MDDNR)
University of Maryland, Agricultural Experiment Station,
Wye Research and Education Center (WREC)

INVESTIGATORS:

Monitoring Program Chief	Steve Jordan	MDDNR
Principal Investigator	Cynthia Stenger	MDDNR
Laboratory Analysis	Kevin Morrisey	WREC

PARAMETERS:

Temperature
Dissolved Oxygen
Specific Conductivity
Salinity *
pH
Alkalinity
Secchi Depth
Total Nitrogen
Nitrate
Ammonia
Total Phosphorus
Total Dissolved Phosphorus
Particulate Phosphorus *
Total Organic Carbon
Dissolved Organic Carbon
Particulate Organic Carbon *
Dissolved Silica
Total Suspended Solids
Total Volatile Solids
Turbidity
Chlorophyll a
Chloride
Sulfate
Ca++ and Mg++ Hardness

Selected Herbicides, Pesticides and Metals

* Calculated from directly measured parameters

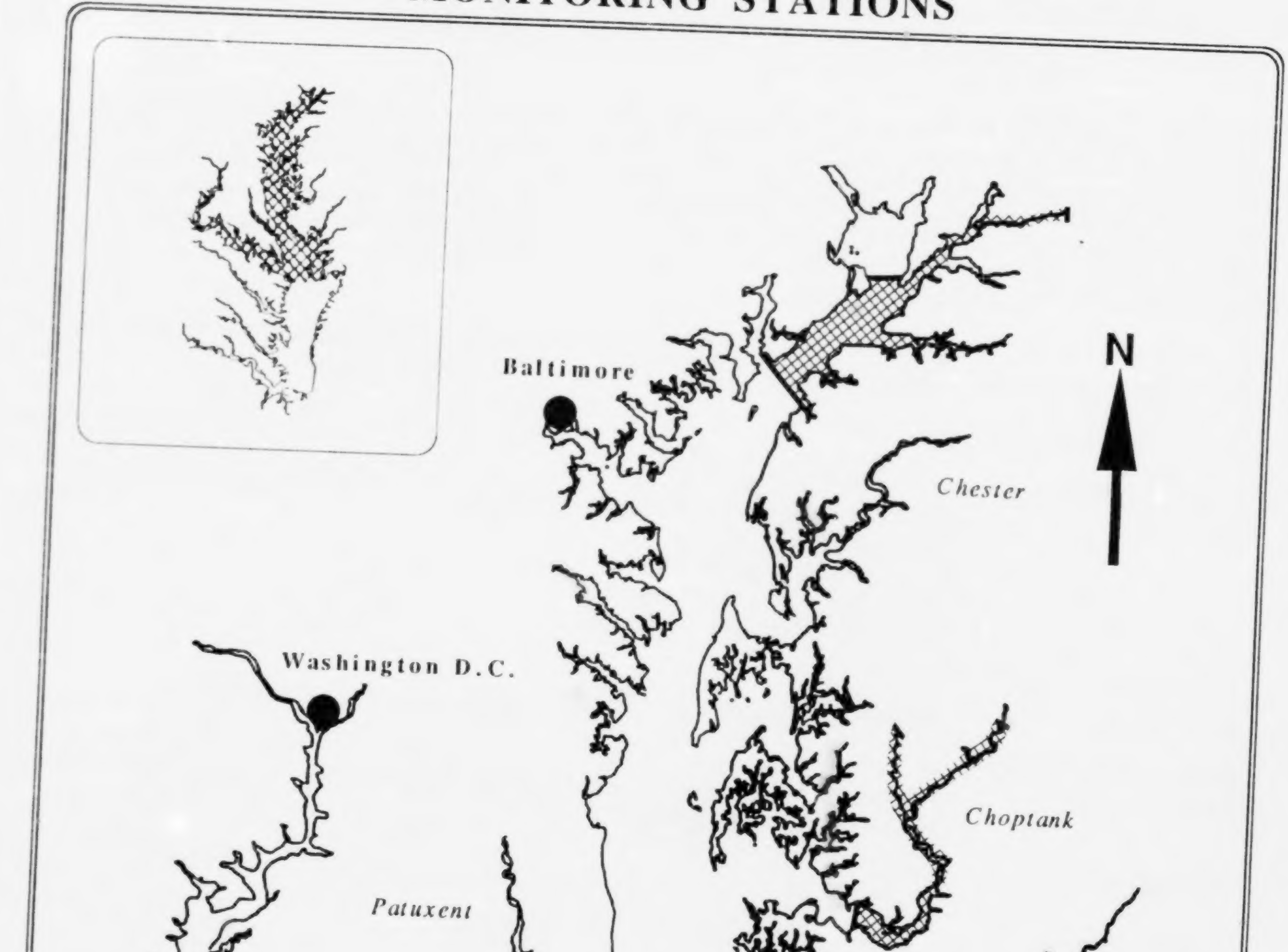
STATIONS: There are no fixed stations for this program. Random sampling is done on a regular basis and carried out within defined segments in the upper Chesapeake Bay, and the Nanticoke, Choptank and Potomac Rivers.

SAMPLE COLLECTION: Sampling is conducted during the survey period, which ranges from the end of March or beginning of April through June, depending on the system. Sampling occurs at randomly selected stations within spawning reaches. In the upper Chesapeake Bay, 2-3 stations are sampled each day for four days out of the week. This area is divided into a grid and stations are randomly selected according to their grid numbers. Likewise, on the Choptank River, 2-3 samples are collected each day for four days out of the week. The area sampled on the Choptank River is divided into 21 sections and stations are selected based upon their river mile number. The Potomac River is divided into seven sampling areas with 21 stations sampled weekly (in one day), three each in the seven sampling areas. An additional shoal sample is collected in waters 2 meters in depth at each station where striped bass larvae are found. Weekly samples are also taken on the Nanticoke River at six random stations, with additional downstream stations added if striped bass larvae are caught in trial tows.

At each station, the water column is profiled for temperature, conductivity, dissolved oxygen and pH at the surface (0.5 meters), mid-depth and the bottom. Secchi depth is also measured and filtrations for chlorophyll are performed. Composite water quality samples are collected using a bilge pump with attached hose to integrate over the water column.

PROGRAM INTEGRATION: Water quality sampling and physiochemical profiling is performed concurrently with the ichthyoplankton sampling component of Maryland's Striped Bass Monitoring Program.

MARYLAND STRIPED BASS HABITAT MONITORING STATIONS



MARYLAND UPPER BAY SUBMERGED AQUATIC VEGETATION HABITAT MONITORING PROGRAM

PROGRAM DESCRIPTION: The Maryland Upper Bay Submerged Aquatic Vegetation Habitat Monitoring Program was initiated in 1986 with the goal of revegetating selected areas of the Bay which have historically contained Submerged Aquatic Vegetation (SAV). SAV enhances habitat for fish and shellfish, provides food for waterfowl and improves the overall quality of Bay waters. Water samples were collected and measurements were taken monthly between June and September at eight stations in 1986. In 1988, monthly sample and measurement collection will take place from April through October and will be expanded in scope to 24 stations.

PROGRAM OBJECTIVES: To characterize current and historic SAV beds, to determine water quality parameters necessary for regrowth and to assess planting and transplanting techniques.

DATE INITIATED: June 1986

COORDINATING AGENCY:

Maryland Department of Natural Resources
Tidewater Administration
Coastal Resources Division
Tawes State Office Building
Annapolis, Maryland 21401

FUNDING AGENCY: Maryland Department of Natural Resources

PARTICIPATING AGENCIES:

Maryland Department of Natural Resources (MDDNR)
Harford Community College (HCC)

INVESTIGATORS:

Program Director	David Bliel	MDDNR
Principal Investigator	Stan Kollar	HCC

PARAMETERS:

Water Column:
Temperature
Dissolved Oxygen
pH
Secchi Depth
Nitrate
Ammonium
Total Phosphorus
Dissolved Inorganic Phosphorus
Chlorophyll *a*

SAV Distribution
Sediment Type

Species:
Vallisneria americana
Myriophyllum specatum
Heterantera dubis
Ceratophyllum demersum
Hydrilla verticillum

STATIONS: There are 24 stations sampled and measured on the Susquehanna River, Susquehanna Flats, Elk River and Sassafras River.

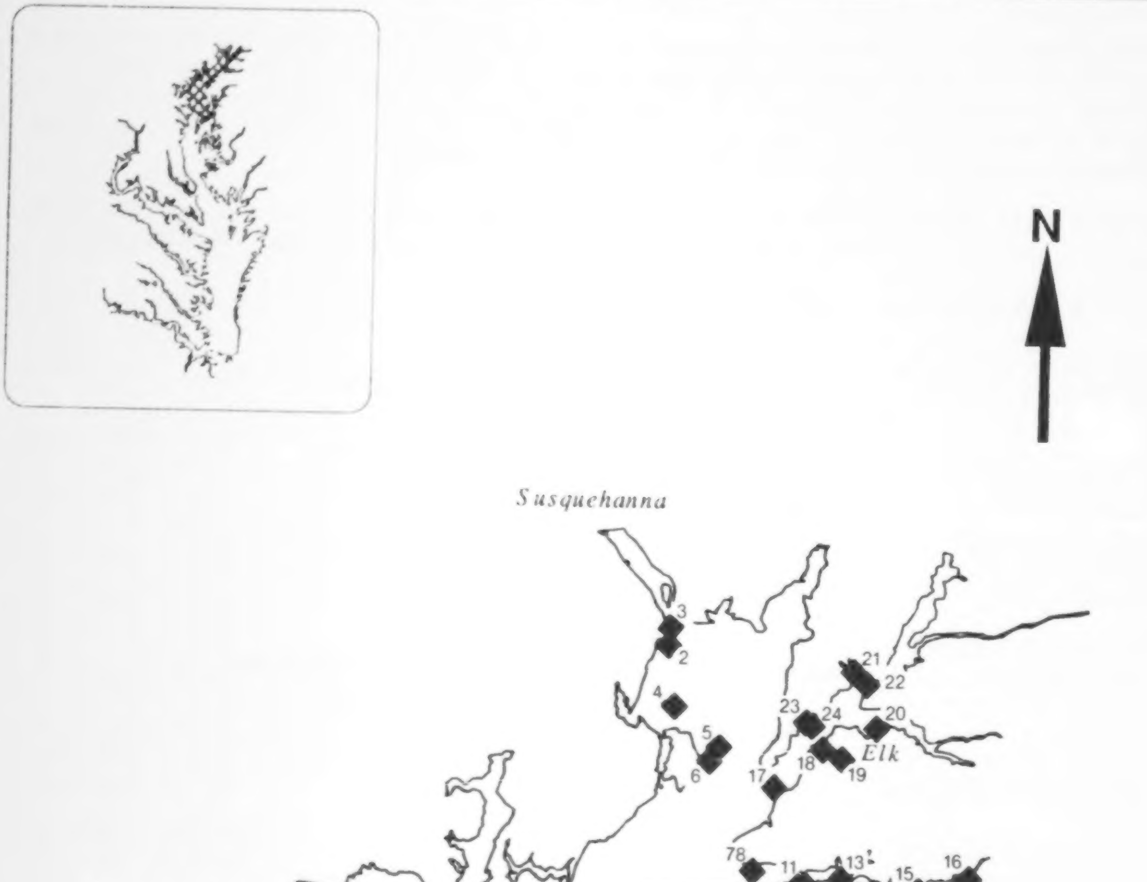
SAMPLE COLLECTION: Samples and measurements are taken on a monthly basis from April through October at 24 stations. At each station, temperature, dissolved oxygen and pH readings are taken 1.0 meter from the surface between the hours of 1 and 4 p.m. Nutrient samples are collected at a 0.3 meter depth, immediately chilled and fixed according to standard methods, and analyzed upon return to the laboratory. Distribution of SAV beds is noted.

PROGRAM INTEGRATION: The determination of water quality parameters which are necessary for the regrowth of SAV will assist in the establishment of future water quality standards for the Chesapeake Bay.

MARYLAND UPPER BAY SUBMERGED AQUATIC VEGETATION HABITAT MONITORING STATIONS

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
1	39 32 47	76 04 55	CB-1	CHESBAY	UPPER CHESAPEAKE BAY	2060001	GARRET ISLAND
10	39 22 08	75 59 16	ET-3	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	SASSAFRAS RIVER, SOUTH SHORE
11	39 21 58	75 59 11	ET-3	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	SASSAFRAS RIVER, NORTH SHORE
12	39 22 20	75 58 48	ET-3	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	SASSAFRAS RIVER, SOUTH SHORE
13	39 22 24	75 56 56	ET-3	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	SASSAFRAS RIVER, SOUTH SHORE
14	39 21 54	75 55 17	ET-3	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	SASSAFRAS RIVER, SOUTH SHORE
15	39 21 46	75 53 01	ET-3	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	SASSAFRAS RIVER, SOUTH SHORE
16	39 22 15	75 50 16	ET-3	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	SASSAFRAS RIVER, HEAD WATERS
17	39 26 21	76 00 10	ET-2	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	ELK RIVER, TURKEY POINT
18	39 27 45	75 57 35	ET-2	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	ELK RIVER, EAST SHORE
19	39 27 20	75 56 46	ET-2	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	ELK RIVER, EAST SHORE
2	39 32 01	76 05 10	CB-1	CHESBAY	UPPER CHESAPEAKE BAY	2060001	OAKINGTON
20	39 28 27	75 54 51	ET-2	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	BOHEMIA RIVER
21	39 30 41	75 55 36	ET-2	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	ELK RIVER, EAST SHORE
22	39 30 21	75 55 10	ET-2	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	ELK RIVER, WEST SHORE
23	39 28 46	75 58 09	ET-2	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	ELK RIVER, WEST SHORE
24	39 28 40	75 58 07	ET-2	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	ELK RIVER, WEST SHORE
3	39 32 38	76 05 03	CB-1	CHESBAY	UPPER CHESAPEAKE BAY	2060001	HAVRE DE GRACE
4	39 29 35	76 05 04	CB-1	CHESBAY	UPPER CHESAPEAKE BAY	2060001	TYDINGS FLATS
5	39 27 55	76 02 53	CB-1	CHESBAY	UPPER CHESAPEAKE BAY	2060001	CENTER FLATS
6	39 27 28	76 03 19	CB-1	CHESBAY	UPPER CHESAPEAKE BAY	2060001	SPOIL ISLANDS
7	39 23 04	76 01 30	ET-3	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	SPOIL ISLANDS
8	39 22 57	76 01 31	ET-3	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	NORTH EAST RIVER
9	39 21 37	76 01 36	ET-3	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	SASSAFRAS RIVER, SOUTH SHORE

MARYLAND UPPER CHESAPEAKE BAY SUBMERGED AQUATIC VEGETATION HABITAT MONITORING STATIONS



MARYLAND CHOPTANK RIVER SUBMERGED AQUATIC VEGETATION PROGRAM

DESCRIPTION: The Maryland Choptank River Submerged Aquatic Vegetation Program was initiated in 1985 with the goal of revegetating areas of the Bay which historically supported Submerged Aquatic Vegetation (SAV). Through this program, water samples are collected and measurements are taken at 14 stations in the Choptank River on a monthly basis between April and September, and every other month from October through March.

PROGRAM OBJECTIVES: To characterize current and historic SAV beds, to determine water quality parameters necessary for regrowth and to assess planting and transplanting techniques.

DATE INITIATED: 1985 [Sediment Analysis 1987]

COORDINATING AGENCY:

Maryland Department of Natural Resources
Tidewater Administration
Coastal Resources Division
Tawes State Office Building
Annapolis, Maryland 21401

FUNDING AGENCY: Maryland Department of Natural Resources

PARICIPATING AGENCIES:

Maryland Department of Natural Resources (MDDNR)
University of Maryland - Center for Estuarine and Environmental Studies (UMCEES)

INVESTIGATORS:

Program Coordinator	David Bliel	MDDNR
Principal Investigator	J. Court Stevenson	UMCEES

PARAMETERS:

Water Quality:
Temperature
Dissolved Oxygen
Specific Conductivity
Salinity
pH
Alkalinity
Light Penetration
Total Nitrogen
Particulate Nitrogen
Nitrate
Nitrite
Nitrate + Nitrite
Ammonium
Total Phosphorous
Dissolved Inorganic Phosphorous
Particulate Carbon
Total Suspended Solids
Chlorophyll a

Sediment:
Grain Size
Nitrate
Nitrite
Ammonium
Dissolved Inorganic Phosphorus

Species:
Ruppia maritima

STATIONS: There are 14 stations located on the Choptank River.

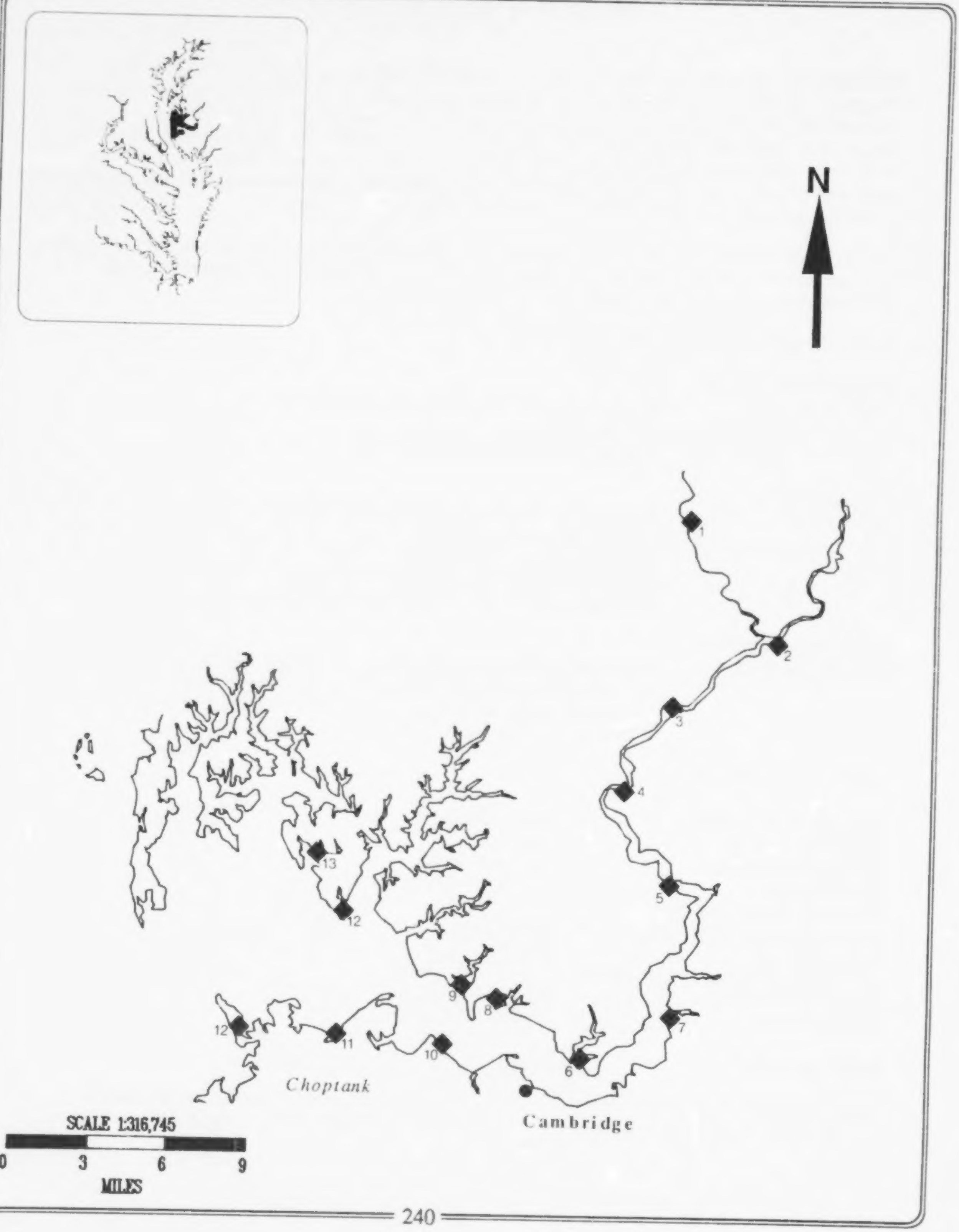
SAMPLE COLLECTION: All stations are surveyed on a monthly basis between April and September and every other month from October to March. All samples are collected in areas of the river less than 2.0 meters deep. Sediment analysis is undertaken by the use of water squeezing techniques and dialysis on sample interstitial nutrients. Sediment grain analysis is carried out by removing organics, washing, dispersing organic solvents, wet sieving to remove sand and determining silts and clays into phi sizes.

PROGRAM INTEGRATION: Data collection is evaluated in conjunction with the Chesapeake Bay Submerged Aquatic Vegetation Aerial Survey. In addition, determination of water quality parameters which are necessary for the regrowth of SAV will assist in the establishment of future water quality standards.

MARYLAND CHOPTANK RIVER SUBMERGED AQUATIC VEGETATION STATIONS

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
1	38 52 51	75 56 42	BFL	EASTERN SHORE	CHOPTANK	2060005	TUCKAHOE CREEK
10	38 35 58	76 08 02	ET-5	EASTERN SHORE	CHOPTANK	2060005	HORN PT.
11	38 36 24	76 12 27	EE-2	EASTERN SHORE	CHOPTANK	2060005	CHAPEL CR.
12	38 36 48	76 16 28	EE-2	EASTERN SHORE	CHOPTANK	2060005	COOKS COVE
13	38 42 24	76 12 54	EE-2	EASTERN SHORE	CHOPTANK	2060005	IRISH CREEK
14	38 40 32	76 11 56	EE-2	EASTERN SHORE	CHOPTANK	2060005	FOXHOLE CREEK
2	38 48 43	75 53 16	ET-5	EASTERN SHORE	CHOPTANK	2060005	GILPIN PR.
3	38 46 47	75 57 51	ET-5	EASTERN SHORE	CHOPTANK	2060005	KINGSTON LANDING
4	38 44 04	75 59 59	ET-5	EASTERN SHORE	CHOPTANK	2060005	HOG ISLAND
5	38 41 05	75 58 32	BFL	EASTERN SHORE	CHOPTANK	2060005	WINDY HILL
6	38 35 16	76 02 17	ET-5	EASTERN SHORE	CHOPTANK	2060005	BOLINGBROOK CREEK
7	38 36 32	75 58 29	ET-5	EASTERN SHORE	CHOPTANK	2060005	WARWICK CREEK
8	38 37 24	76 05 36	ET-5	EASTERN SHORE	CHOPTANK	2060005	DICKENSON BAY
9	38 37 49	76 07 08	BFL	EASTERN SHORE	CHOPTANK	2060005	TRAPPE CR.

MARYLAND CHOPTANK RIVER SUBMERGED AQUATIC VEGETATION STATIONS



RHODE RIVER WATERSHED ENVIRONMENTAL MONITORING PROGRAM

PROGRAM DESCRIPTION: The Rhode River Watershed Environmental Monitoring Program is a long-term interdisciplinary landscape level study of the Rhode River, its watershed and airshed, and is conducted by the Smithsonian Environmental Research Center. Some sampling is conducted on an event basis although most monitoring is performed on a fairly long-term basis. The focus of this program is on the impacts of human use of the land, air and water upon water quality and biological populations and ecosystems. Comparative studies are used to assess the generality of results from this site to the Chesapeake region.

PROGRAM OBJECTIVE: To distinguish the effects of weather variation from those of local land use and air quality. Ultimately, to develop predictive models to synthesize and test our understanding of the overall system.

DATE INITIATED: 1968

COORDINATING AGENCY:

Smithsonian Environmental Research Center
P.O. Box 28
Edgewater, Maryland 21037-0028

FUNDING AGENCY:

Smithsonian Environmental Research Center
U.S. Department of Energy
National Science Foundation
Maryland Department of Natural Resources
National Oceanic and Atmospheric Administration

PARTICIPATING AGENCIES:

Smithsonian Environmental Research Center (SERC)
Maryland Department of Natural Resources (MDDNR)
National Oceanic and Atmospheric Administration (NOAA)
University of Maryland (UMD)

INVESTIGATORS:

Principal Investigator	David Correll	SERC
Plant Physiologist	Bert Drake	UMD
Estuarine Ecologist	Thomas Jordan	UMD
Microbiologist	Charles Gallegos	UMD
Estuarine Animal Ecologist	Anson Hines	UMD
Terrestrial Animal Ecologist	James Lynch	UMD
Forest Ecologist	Jess Parker	UMD
Geographic Information Specialist	Derek Thompson	UMD
Quantitative Ecologist	Donald Weller	UMD
Plant Ecologist	Dennis Whigham	SERC

PARAMETERS:

Total Solar Radiation (White Light)
Visible And UV Spectral Irradiance
Spectral Underwater Penetration
Ground Water Table Slopes

Stream Water Discharge Rates
Suspended Sediment Discharge Rates

Weather Stations (not all parameters measured at all stations):
Air Temperature
Humidity
Windspeed and Direction
Rainfall Volume and Intensity
Pan Evaporation

Bulk Precipitation , Wet Precipitation ,Throughfall Chemistry:
Conductivity
pH
Total Kjeldahl Nitrogen
Nitrite
Ammonium
Total Phosphorus
Dissolved Inorganic Phosphorus
Organic Carbon
Sulfate
Turbidity
Flouride
Weak Acids
Strong Acids
Calcium
Magnesium
Potassium
Sodium

Dry Deposition Chemistry:
Change in chemistry between bulk precipitation and throughfall (above parameters), or
Water Vapor
Carbon Dioxide
Ozone
Nitrogen Oxides
Sulfur Dioxide
Particulate Nitrogen
Particulate Sulfate
Calcium
Magnesium
Potassium
Sodium
Nitric Acid
Sulfuric Acid

Ground Water, Stream Water Discharge, Infiltration Chemistry:
Conductivity
pH
Alkalinity
Total Kjeldahl Nitrogen
Nitrite
Ammonium
Total Phosphorus
Phosphate
Organic Carbon
Silicate
Chloride
Flouride
Sulfate
Aluminum
Calcium
Iron
Magnesium
Manganese
Potassium
Sodium

Overland Flow Chemistry:
Conductivity
pH
Alkalinity
Total Kjeldahl Nitrogen
Particulate TKN
Nitrite
Ammonium
Total Phosphorus
Phosphate
Organic Carbon
Total Suspended Particulates
Silicate
Chloride
Flouride
Sulfate
Aluminum
Calcium
Iron
Magnesium
Manganese
Potassium
Sodium

Tidal Water Quality Chemistry:
Temperature
Dissolved Oxygen
Conductivity
Particulate Kjeldahl Nitrogen
Dissolved Kjeldahl Nitrogen
Nitrite
Nitrate
Total Phosphorus
Total Dissolved Phosphorus
Dissolved Phosphate

Phosphate
Organic Carbon
Dissolved Organic Carbon
Suspended Particulates
Turbidity
Chloride

Forest Tree and Herb Populations:
Abundance
Composition

Forest Bird Populations:
Number of Breeding Pairs

Estuarine Fish Populations:
Taxa Identification
Abundance
Length
Weight

Crab Populations:
Taxa Identification
Abundance
Length
Weight

Estuarine Benthic Invertebrate Populations:
Taxa Identification
Abundance

STATIONS: See accompanying stations listing and map.

SAMPLE COLLECTION: A network of permanent instrumented stations for weather, precipitation, watershed transects, stream weirs, tidal flux and water quality are distributed within the Rhode River and its watershed. The main weather station is located near the lab and the other that is monitored consistently is at the dock. Bulk precipitation, wet precipitation, dry deposition, throughfall, overland flow and infiltration are sampled by event by automated machinery. Ground water chemistry, although sampled with a rainfall event, is sampled approximately monthly. Integrated stream water discharge samples are composited over 1 week intervals with discrete samples taken during storm events. Tidal water quality is sampled weekly or biweekly.

Fish populations are monitored at a fish weir three times per week, accompanied by shoreline seining which is conducted three times per year in the spring and the summer at 25 stations in order to obtain young-of-the-year numbers, and by trawling at the end of the year. Due to ongoing crab ecology studies, crab populations are monitored at the fish weir and through the use of transmitters. Benthic populations are monitored at three stations. Forest bird populations are surveyed once a year in the spring for pairs of nesting birds and this territory is mapped.

Total solar radiation and UV spectral irradiance are monitored at the main laboratory. Physical water parameters and tidal measurements are made at the dock.

PROGRAM INTEGRATION: The Smithsonian Environmental Research Center coordinates and synthesizes many different aspects of the program and its findings.

RHODE RIVER WATERSHED ENVIRONMENTAL MONITORING PROGRAM - WEATHER STATIONS

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
WDOCK	38 53 07	76 32 32	WT-8	WEST CHESAPEAKE	SEVERN	2060004	AT THE SMITHSONIAN ENVIRON RES
WLAB	38 53 13	76 33 17	BFL	WEST CHESAPEAKE	SEVERN	2060004	ADJACENT TO THE SMITHSONIAN ENV

RHODE RIVER WATERSHED ENVIRONMENTAL MONITORING PROGRAM - RAIN GAUGE STATIONS

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
WLAB	38 53 13	76 33 17	BFL	WEST CHESAPEAKE	SEVERN	2060004	ADJACENT TO THE SMITHSONIAN ENV
R101	38 54 32	76 33 57	BFL	WEST CHESAPEAKE	SEVERN	2060004	RHODE RIVER DRAINAGE BASIN 101
R121	38 51 41	76 36 21	BFL	WEST CHESAPEAKE	SEVERN	2060004	RHODE RIVER DRAINAGE BASIN 121
R123	38 54 17	76 31 22	BFL	WEST CHESAPEAKE	SEVERN	2060004	RHODE RIVER DRAINAGE BASIN 123

RHODE RIVER WATERSHED ENVIRONMENTAL MONITORING PROGRAM - STREAM AND TIDAL RIVER CHEMISTRY MONITORING STATIONS

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
101	38 53 25	76 33 30	BFL	WEST CHESAPEAKE	SEVERN	2060004	RHODE RIVER DRAINAGE BASIN 101
102	38 53 17	76 33 53	BFL	WEST CHESAPEAKE	SEVERN	2060004	RHODE RIVER DRAINAGE BASIN 102
103	38 53 23	76 34 09	BFL	WEST CHESAPEAKE	SEVERN	2060004	RHODE RIVER DRAINAGE BASIN 103
105	38 54 14	76 32 36	BFL	WEST CHESAPEAKE	SEVERN	2060004	RHODE RIVER DRAINAGE BASIN 105
106	38 54 11	76 32 40	BFL	WEST CHESAPEAKE	SEVERN	2060004	RHODE RIVER DRAINAGE BASIN 106
107	38 53 06	76 33 07	BFL	WEST CHESAPEAKE	SEVERN	2060004	RHODE RIVER DRAINAGE BASIN 107
108	38 51 56	76 33 12	BFL	WEST CHESAPEAKE	SEVERN	2060004	RHODE RIVER DRAINAGE BASIN 108
109	38 51 43	76 33 15	BFL	WEST CHESAPEAKE	SEVERN	2060004	RHODE RIVER DRAINAGE BASIN 109
110	38 53 02	76 33 18	BFL	WEST CHESAPEAKE	SEVERN	2060004	RHODE RIVER DRAINAGE BASIN 110
111	38 54 04	76 33 31	BFL	WEST CHESAPEAKE	SEVERN	2060004	RHODE RIVER DRAINAGE BASIN 111
121	38 52 53	76 33 51	BFL	WEST CHESAPEAKE	SEVERN	2060004	RHODE RIVER DRAINAGE BASIN 121
122	38 52 52	76 32 44	WT-8	WEST CHESAPEAKE	SEVERN	2060004	RHODE RIVER DRAINAGE BASIN 122
123	38 53 23	76 31 29	WT-8	WEST CHESAPEAKE	SEVERN	2060004	RHODE RIVER DRAINAGE BASIN 123
124	38 52 50	76 30 57	WT-8	WEST CHESAPEAKE	SEVERN	2060004	RHODE RIVER DRAINAGE BASIN 124

RHODE RIVER WATERSHED ENVIRONMENTAL MONITORING PROGRAM - ESTUARINE BENTHIC INVERTEBRATE STATIONS

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
RR2	38 51 59	76 30 60	WT-8	WEST CHESAPEAKE	SEVERN	2060004	MOUTH OF THE RHODE RIVER
RR4T	38 53 04	76 32 32	WT-8	WEST CHESAPEAKE	SEVERN	2060004	RHODE RIVER CHANNEL WEST OF BIG
RR5T	38 52 45	76 32 52	WT-8	WEST CHESAPEAKE	SEVERN	2060004	RHODE RIVER CHANNEL EAST OF MUD

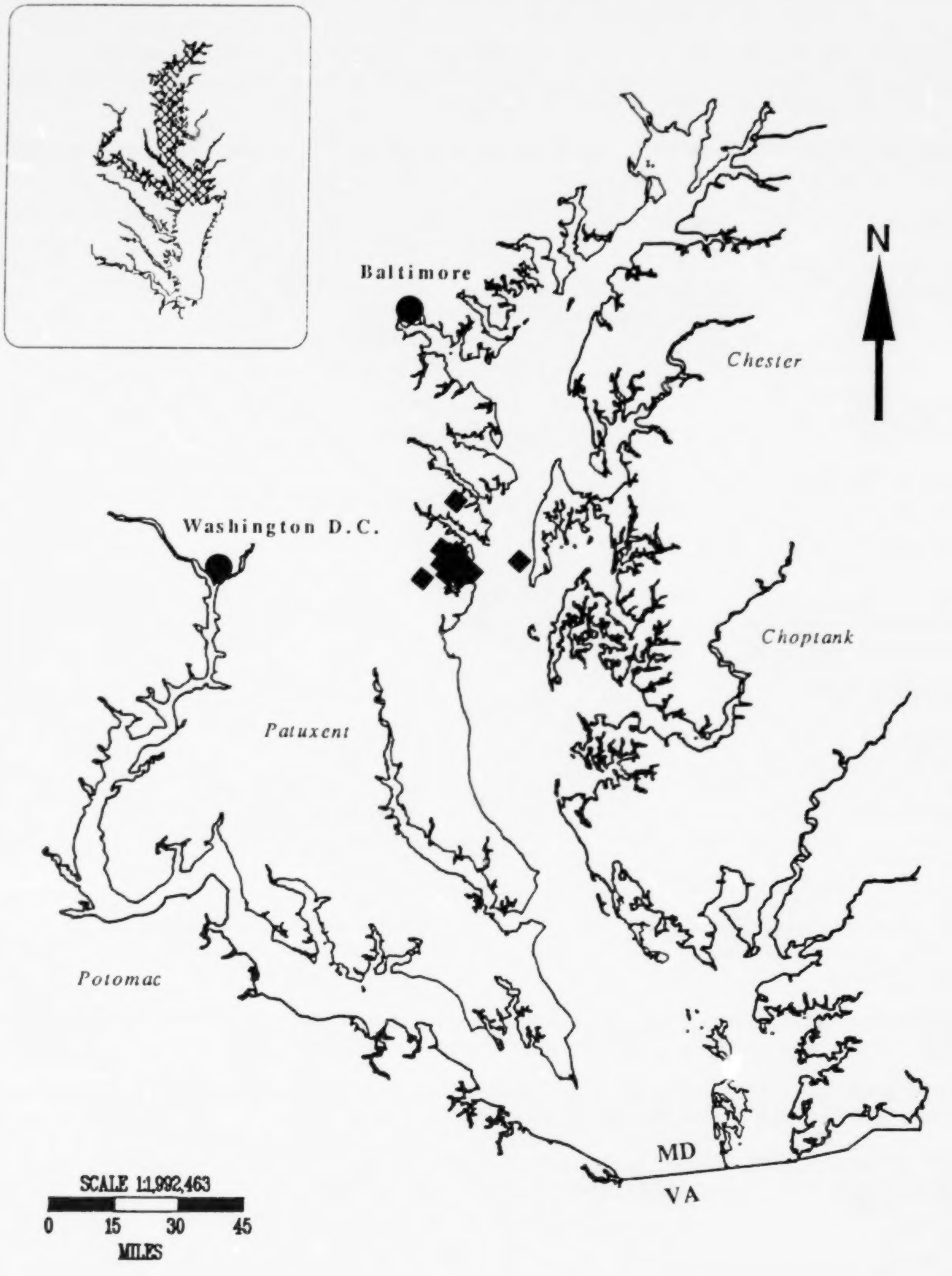
RHODE RIVER WATERSHED ENVIRONMENTAL MONITORING PROGRAM - TIDAL WATER QUALITY CHEMISTRY STATIONS

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
C5	38 53 05	76 33 35	BFL	WEST CHESAPEAKE	SEVERN	2060004	NORTH FORK OF MUDDY CREEK
C6	38 52 56	76 33 47	BFL	WEST CHESAPEAKE	SEVERN	2060004	MAIN BRANCH OF MUDDY CREEK ABOV
C7	38 53 01	76 33 18	BFL	WEST CHESAPEAKE	SEVERN	2060004	MAIN CHANNEL OF MUDDY CREEK
C8	38 52 43	76 33 02	WT-8	WEST CHESAPEAKE	SEVERN	2060004	MOUTH OF MUDDY CREEK
C9	38 52 54	76 32 39	WT-8	WEST CHESAPEAKE	SEVERN	2060004	BETWEEN FOX POINT AND CORN ISLA
WR0	38 51 58	76 29 35	WT-8	WEST CHESAPEAKE	SEVERN	2060004	ADJACENT TO WR2 CHANNEL MARKER
WR1	38 51 28	76 31 07	WT-8	WEST CHESAPEAKE	SEVERN	2060004	WEST RIVER OFF CHESTON POINT
RR2	38 51 59	76 30 60	WT-8	WEST CHESAPEAKE	SEVERN	2060004	MOUTH OF RHODE RIVER
RR3	38 52 56	76 31 14	WT-8	WEST CHESAPEAKE	SEVERN	2060004	CHANNEL NEAR RR7 CHANNEL MARKER
RR4	38 53 13	76 32 19	WT-8	WEST CHESAPEAKE	SEVERN	2060004	CHANNEL WEST OF NORTHERN END OF
SEL	38 53 48	76 32 15	WT-8	WEST CHESAPEAKE	SEVERN	2060004	SELLMAN CREEK
CC	38 52 43	76 23 55	CB-4	CHESBAY	UPPER CHESAPEAKE BAY	2060001	CADLE CREEK
BN	38 53 50	76 31 45	WT-8	WEST CHESAPEAKE	SEVERN	2060004	BEAR NECK CREEK
WM	38 53 39	76 31 18	BFL	WEST CHESAPEAKE	SEVERN	2060004	WHITE MARSH CREEK

RHODE RIVER WATERSHED ENVIRONMENTAL MONITORING PROGRAM - ESTUARINE FISH AND CRAB POPULATION STATIONS

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
TRANSECT A	38 58 37	76 31 59	BFL	WEST CHESAPEAKE	SEVERN	2060004	NORTHERN END OF CORN ISLAND TO
TRANSECT A	38 52 54	76 32 35	WT-8	WEST CHESAPEAKE	SEVERN	2060004	NORTHERN END OF CORN ISLAND TO
TRANSECT B	38 52 19	76 31 03	WT-8	WEST CHESAPEAKE	SEVERN	2060004	MOUTH OF THE RHODE RIVER
TRANSECT B	38 51 51	76 31 02	WT-8	WEST CHESAPEAKE	SEVERN	2060004	MOUTH OF THE RHODE RIVER
TRANSECT C	38 52 21	76 30 56	WT-8	WEST CHESAPEAKE	SEVERN	2060004	MOUTH OF THE RHODE RIVER
TRANSECT C	38 51 54	76 30 49	WT-8	WEST CHESAPEAKE	SEVERN	2060004	MOUTH OF THE RHODE RIVER

RHODE RIVER WATERSHED MONITORING STATIONS



VIRGINIA NEARSHORE SUBMERGED AQUATIC VEGETATION HABITAT MONITORING PROGRAM

PROGRAM DESCRIPTION: The Virginia Nearshore Submerged Aquatic Vegetation Habitat Monitoring Program consists of biweekly sampling of the water column at six stations in both vegetated and non-vegetated shoal flats along the lower York River.

PROGRAM OBJECTIVES: To investigate the relationships between environmental factors and SAV growth and survival.

DATE INITIATED: September 1984

COORDINATING AGENCY:
College of William and Mary
Virginia Institute of Marine Sciences
Division of Fisheries and Biological Sciences
Gloucester Point, Virginia 23062

FUNDING AGENCY: Virginia Council on the Environment

PARTICIPATING AGENCY: Virginia Institute of Marine Sciences (VIMS)

INVESTIGATORS:

Principal Investigator	Kenneth A. Moore	VIMS
Co-principal Investigator	Richard L. Wetzel	VIMS
Co-principal Investigator	Robert J. Orth	VIMS

PARAMETERS:

Temperature
Dissolved Oxygen
Light Attenuation
Nitrate
Nitrite
Ammonium
Dissolved Inorganic Phosphorus
Total Filterable Matter
Total Filterable Inorganic Matter
Total Filterable Organic Matter
Dissolved Silica

Chlorophyll *a*

Air Temperature
Wind Speed
Wind Direction
Tidal Stage

Species:
Ruppia maritima (widgeongrass)
Zostera marina (eelgrass)

STATIONS: There are six stations sampled in shoal areas of the York River less than 100 meters from shore. These stations are presently or historically vegetated with SAV.

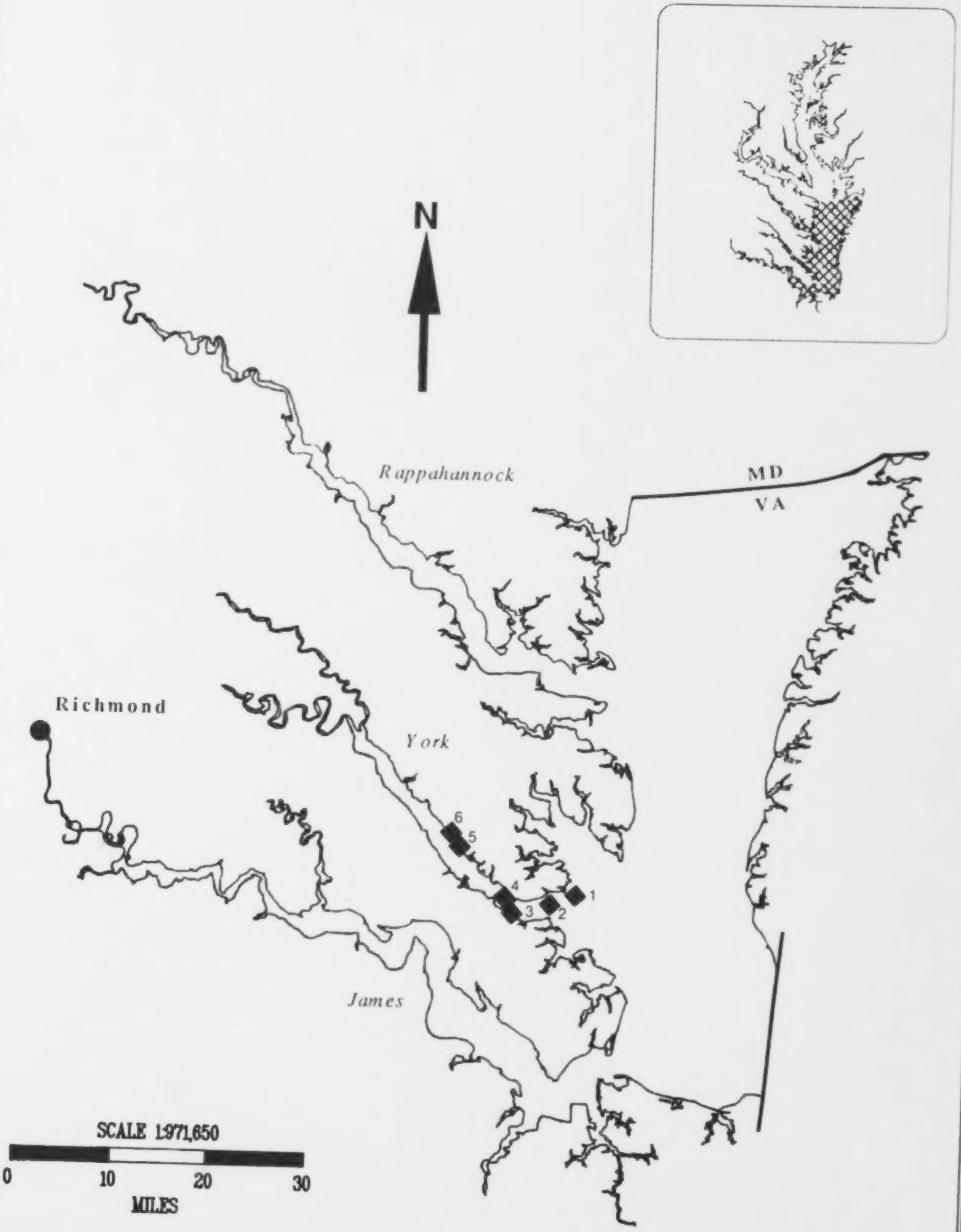
SAMPLE COLLECTION: At each station, physical parameters are recorded and water samples are collected at 0.25 m below the surface during low tide, biweekly throughout the year.

PROGRAM INTEGRATION: Results are integrated with research studies on the growth, production and survival of natural and transplanted submerged macrophytes.

VIRGINIA NEARSHORE SUBMERGED AQUATIC VEGETATION HABITAT MONITORING STATIONS

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
1	37 15 04	76 22 59	WE-4	YORK	GREAT WICOMICO-PIANKATANK	2080102	GUINEA MARSH
2	37 15 11	76 25 34	WE-4	YORK	GREAT WICOMICO-PIANKATANK	2080102	ALLEN'S ISLAND
3	37 14 47	76 30 09	LE-4	YORK	YORK	2080107	GLOUCESTER POINT
4	37 15 41	76 30 42	LE-4	YORK	YORK	2080107	MUMFORT ISLAND
5	37 20 35	76 35 54	BFL	YORK	YORK	2080107	CARTER'S CREEK
6	37 20 53	76 36 33	LE-4	YORK	YORK	2080107	CLAY BANK

VIRGINIA NEARSHORE SUBMERGED AQUATIC VEGETATION (SAV) HABITAT MONITORING STATIONS



GUNSTON COVE ECOSYSTEM MONITORING PROGRAM

PROGRAM DESCRIPTION: The Gunston Cove Ecosystem Monitoring Program carried out by George Mason University involves long-term monitoring of physical and biological components of the ecosystem in Pohick Creek, Gunston Cove, Dogue Creek, and the adjacent Potomac River. These studies include physical water parameters, and phytoplankton, zooplankton, benthos, fish, bird, amphibian, reptile and mammal surveys. In conjunction with this monitoring, Fairfax County conducts water quality monitoring in order to determine the effects of sewage outfall from a tertiary treatment plant which empties into Gunston Cove. Sample stations and dates are coordinated between the two programs.

PROGRAM OBJECTIVES: To provide a description and analysis of seasonal and spatial patterns of abundance and activity of major groups of aquatic organisms in the Gunston Cove vicinity. To assess current ecological conditions as well as to provide long-term baseline data for evaluating the effects of changes in land use and/or sewage treatment occurring in the future.

DATE INITIATED:
1984 - Physical water quality, phyto- and zooplankton, benthos, fish.
1985 - Bird, amphibian, reptile, and mammal surveys.
1982 - Water quality monitoring (Fairfax County).

COORDINATING AGENCY:
George Mason University
Department of Biology
4400 University Drive
Fairfax, Virginia 22030

FUNDING AGENCY: Fairfax County

PARTICIPATING AGENCIES:
George Mason University (GMU)
County of Fairfax, Environmental Laboratory Services (FCDLS)

INVESTIGATORS:

Project Director	R. Christian Jones	GMU
Co-Principal Investigator	Don Kelso	GMU
Director	Elaine Schaeffer	FCDLS

PARAMETERS:

George Mason University:
Temperature
Conductivity
Dissolved Oxygen
Secchi Depth
pH
Total Alkalinity
Chlorophyll *a*
Phytoplankton ID, Abundance, and Composition
Photosynthetic Rate (c14 uptake)
Zooplankton ID, Abundance and Composition
Ichthyoplankton Density, ID, Abundance, and Composition
Benthos ID, Abundance and Composition
Fish Identification, Abundance and Composition
Bird Survey
Amphibian Survey
Reptile Survey
Mammal Survey

Fairfax County:
Temperature

Conductivity
Dissolved Oxygen
pH
Total Alkalinity
Secchi Depth
Total Kjeldahl Nitrogen
Nitrate
Nitrite
Ammonia
Total Phosphorus
Soluble Reactive Phosphorus
Total Suspended Solids
Volatile Suspended Solids
Chlorophyll *a*
Phaeophytin
Biological Oxygen Demand
Chloride
Wind Direction
Wind Speed

STATIONS: There are 13 stations located in Pohick Creek, Dogue Creek, Gunston Cove, and the adjacent Potomac River, 25 miles downstream from the head of the tidal influence and 100 miles upstream from the mouth of the Potomac River. Bird, amphibian, reptile, and mammal surveys are conducted in Pohick and Accotink Creek marshes.

SAMPLE COLLECTION: Benthos sampling and amphibian, reptile, and mammal surveys are conducted annually. The bird survey is conducted quarterly. All other parameters are measured monthly from March through November, with additional spring ichthyoplankton and summer phytoplankton sampling.

At cove stations, depth-integrated water samples are obtained at 0.3 m, mid-depth and 0.5 m above the bottom using a submersible pump for pH, alkalinity, chlorophyll and photosynthetic activity analyses and 100 ml are preserved in 1% Lugol's iodine for the phytoplankton analyses. At stream stations a grab sample is used for alkalinity and pH analyses. Simultaneous profile readings of temperature, dissolved oxygen, and conductivity are performed at 0.3 m, 1 m and at every meter thereafter using YSI meters. A surface sample is also collected for chlorophyll analysis and protected from direct sunlight. Photosynthetic rate is determined on depth-integrated samples maintained at in-situ temperature using 14C-labelled sodium bicarbonate.

Zooplankton samples are obtained by pumping known quantities of water from 0.3 m, mid-depth and the bottom through a 73 µm mesh net. These are preserved with buffered formalin. Ichthyoplankton samples are obtained by using a 333 µm mesh net towed for two minutes at three depths (unless very shallow) and preserved in 5% formalin. Benthic samples are obtained using a Ponar sampler with an opening of 23x23cm. The samples are washed in the field through a 0.35 mm mesh screen and preserved in formalin. In the laboratory they are sieved through a 0.5 mm mesh screen. Macrophytes are collected for biomass determination by randomly placing a 0.5m x 0.5 m metal quadrat by snorkeling, which are retrieved and placed in a plastic bag for transport to the lab. They are then dried at 85°C and weighed to the nearest mg. Fish are sampled by trawling at stations 7,8,10, 14 and 15 with a try-net bottom trawl with a 15 foot horizontal opening, a 3/4 inch square body mesh and a 1/4 inch square cod end mesh at 2-3 miles per hour for 10 minutes. Fish are identified, measured in length and weighed. Fish along the shoreline are sampled by seining at 4 stations with a 45-50 foot, 4 feet high, 1/4 inch square mesh seine.

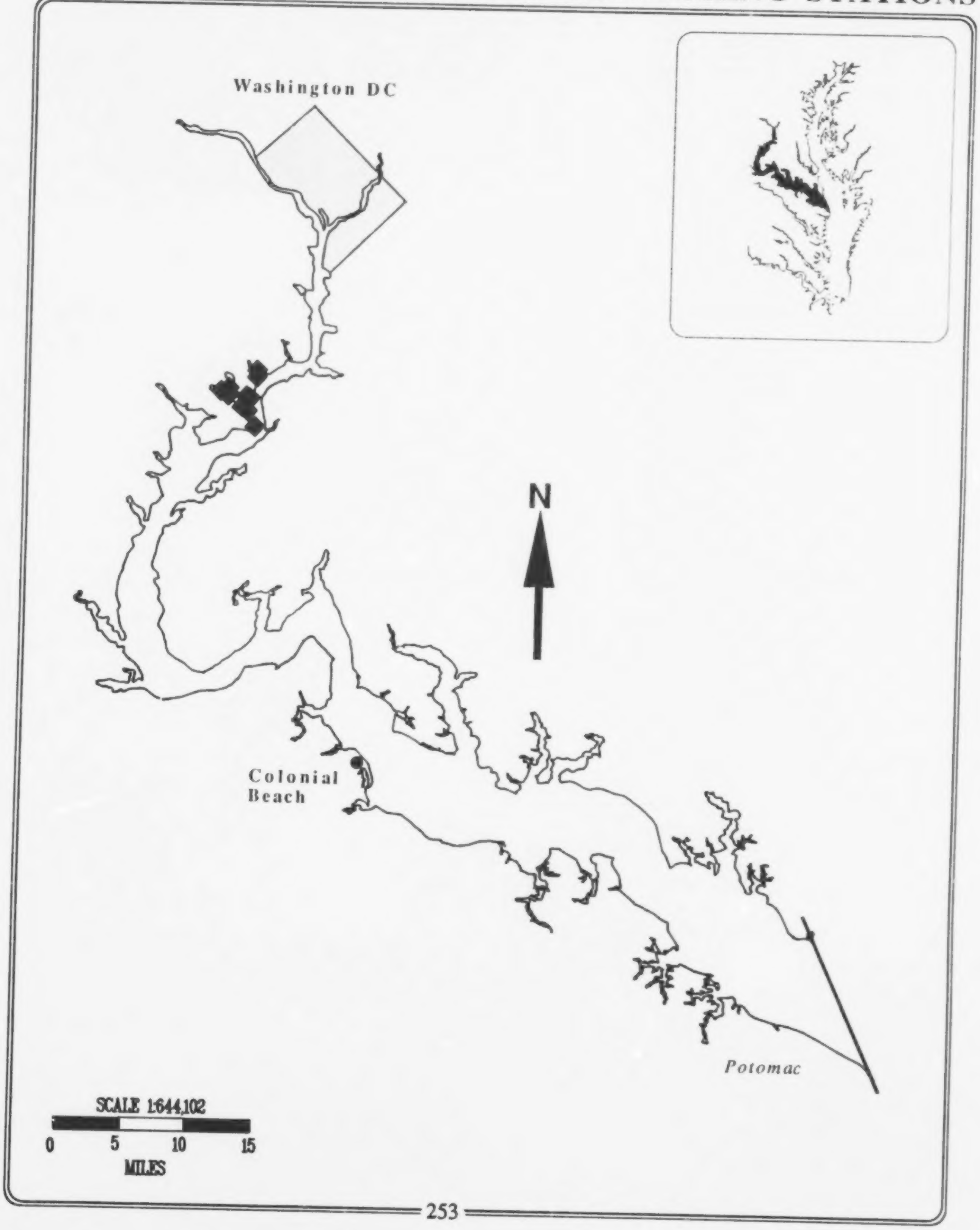
Fairfax County water quality monitoring is conducted every two weeks from April through November and monthly from December through March at these same stations.

PROGRAM INTEGRATION: N/A

GUNSTON COVE ECOSYSTEM MONITORING STATIONS

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
10	38 41 01	77 10 13	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	N. SHORE POHICK BAY
11	38 40 10	77 08 50	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	S. SHORE MID GUNSTON COVE
12	38 40 32	77 08 20	BFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	COAST GUARD STATION
14	38 40 17	77 07 43	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	POTOMAC RIVER MD SIDE
15	38 42 11	77 07 25	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	N. SHORE DOGUE CREEK EMBAYMENT
16	38 38 29	77 07 27	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	POTOMAC RIVER AT HALLOWING PT.
18	38 41 42	77 07 17	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	S. SHORE DOGUE CREEK EMBAYMENT
4	38 40 57	77 10 33	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	S. SHORE POHICK BAY
5	38 40 49	77 09 56	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	POHICK BAY PARK LAUNCH RAMP
6	38 41 10	77 09 39	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	MOUTH OF ACCOTINK BAY
7	38 40 45	77 09 24	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	CENTER OF GUNSTON COVE
8	38 39 31	77 08 18	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	S. SHORE OUTER GUNSTON COVE
9	38 40 32	77 07 58	BFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	POTOMAC RIVER CHANNEL

GUNSTON COVE ECOSYSTEM MONITORING STATIONS



VIRGINIA KEPONE GROUNDWATER MONITORING PROGRAM

PROGRAM DESCRIPTION: The Virginia Kepone Groundwater Monitoring Program was established as a result of the contamination of the James River and Hopewell, Virginia area by disposal and wastewater discharges of kepone.

PROGRAM OBJECTIVE: To assess the magnitude of groundwater contamination by kepone.

DATE INITIATED: 1976

COORDINATING AGENCY:
Virginia Water Control Board
Office of Environmental Research and Standards
2111 North Hamilton Street
Richmond, Virginia 23230

FUNDING AGENCY: Virginia Water Control Board

PARTICIPATING AGENCIES:
Virginia Water Control Board (VWCB)
Virginia Division of Consolidated Laboratory Services (DCLS)

INVESTIGATORS:

Program Coordinator	Gail Walton	VWCB
Chemical Analysis	Gioya Bennett	DCLS

PARAMETERS:

Kepone

STATIONS: Six groundwater samples are taken quarterly from three wells and three seeps located in Hopewell.

SAMPLE COLLECTION: Groundwater samples are collected from the wells by use of a hand pump, and from the seeps by hand. Samples are collected quarterly from all six locations. They are placed in clean quart jars, sealed with aluminum foil, and capped.

PROGRAM INTEGRATION: In December 1975, the Virginia Kepone Task Force developed a comprehensive kepone monitoring program with responsibilities divided among the Virginia Water Control Board, the Virginia Department of Health, and the Virginia Institute of Marine Science. The groundwater monitoring program is integrated with the ongoing sediment and finfish monitoring programs.

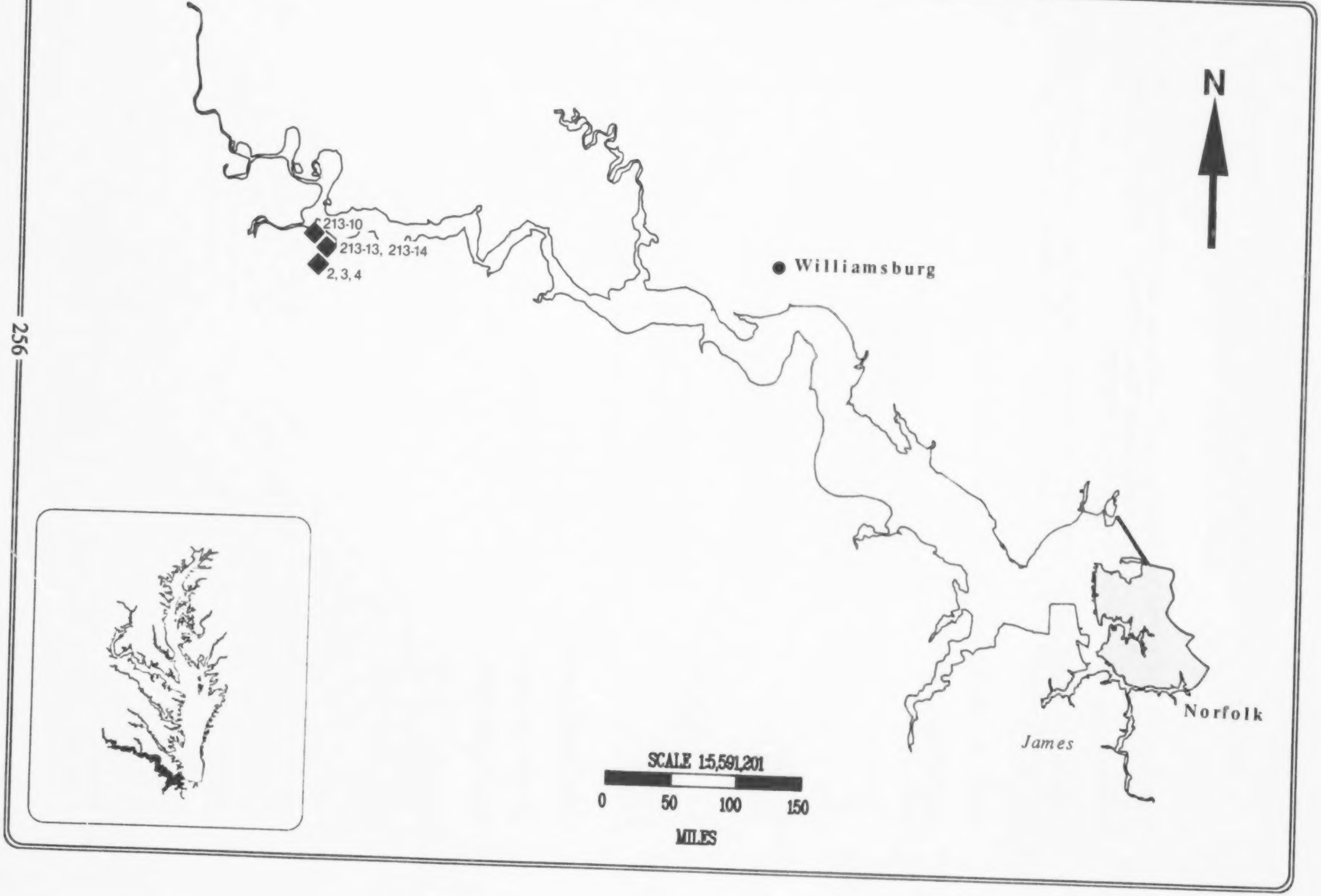
VIRGINIA KEPONE GROUNDWATER MONITORING PROGRAM - SEEP STATIONS

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
2	37 16 36	77 16 41	BFL	JAMES	LOWER JAMES	2080206	HOPEWELL LAGOON DISPOSAL CELL(B
3	37 18 11	77 16 52	BFL	JAMES	LOWER JAMES	2080206	HOPEWELL LAGOON DISPOSAL CELL(U
4	37 18 11	77 16 52	BFL	JAMES	LOWER JAMES	2080206	HOPEWELL LAGOON DISPOSAL CELL(D

VIRGINIA KEPONE GROUNDWATER MONITORING PROGRAM - OBSERVATION WELL STATIONS

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
213-10	37 18 11	77 16 52	BFL	JAMES	LOWER JAMES	2080206	NITROGEN PARK IN HOPEWELL
213-13	37 17 25	77 16 03	BFL	JAMES	LOWER JAMES	2080206	PEBBLED AMMONIUM NITRATE SITE,
213-14	37 17 25	77 16 03	BFL	JAMES	LOWER JAMES	2080206	PEBBLED AMMONIUM NITRATE SITE,

VIRGINIA KEPONE GROUND WATER MONITORING STATIONS



MARYLAND CHESAPEAKE BAY SEDIMENT TOXICANT MONITORING PROGRAM

PROGRAM DESCRIPTION: The Maryland Chesapeake Bay Sediment Toxicant Monitoring Program collects surface sediment samples, every three to five years, at each of 22 mainstem stations and annually at each of 37 tidal tributary stations.

PROGRAM OBJECTIVE: To identify and track on a regular basis, any toxicant, organic or metal accumulation in the sediments. Areas of concern may be followed-up with an intensive study.

DATE INITIATED: 1984 (Mainstem), 1985 (Tributaries)

COORDINATING AGENCY:

Maryland Department of the Environment
Water Management Administration
Chesapeake Bay and Special Projects Program
2500 Broening Highway
Baltimore, Maryland 21224

FUNDING AGENCIES:

Maryland Department of the Environment
U.S. EPA Chesapeake Bay Liaison Office

PARTICIPATING AGENCIES:

Maryland Department of the Environment (MDE)
Maryland Department of Health and Mental Hygiene Laboratory (MD DHMH)
Chesapeake Biological Laboratory (CBL)

INVESTIGATORS:

Project Coordinator	Robert Magnien	MDE

PARAMETERS

Arsenic
Cadmium
Chromium
Copper
Iron
Lead
Manganese
Mercury
Nickel
Zinc
Moisture content
Particulate Nitrogen
Total organic carbon
Particle size distribution
Naphthalene
Fluorene
Phenanthrene
Anthracene
Fluoranthene
Pyrene
Benzo(a)pyrene
Chrysene
Acenaphthlyene
Acenaphthene
Indeno(123-cd)pyrene
Dimethyl phthalate (AB)
Diethyl phthalate (AB)
Dibutyl phthalate (AB)
Butyl benzyl phthalate (AB)
Dioctal phthalate (AB)
Phenol
N-nitrosodimethylamine
Analine (AB)
Bis (2-chloroethyl) ether
2-chlorophenol
1,3-dichlorobenzene

1,4-dichlorobenzene
Benzyl alcohol
1,2-dichlorobenzene
2-methylphenol
Bis (chloroisopropyl) ether
2,4-dimethylphenol
Benzoic acid
Bis (2-chloroethoxy) methane (AB)
2,4-dichlorophenol
1,2,4-trichlorobenzene
3-chloroaniline (AB)
Hexachlorobutadiene
4-chloro-3-methylphenol
2-methylnaphthalene
Hexachlorocyclopentadiene
2,4,6-trichlorophenol
2,4,5-trichlorophenol
2-chloronaphthalene
2-nitroaniline (AB)
3-nitroaniline (AB)
2,4-dinitrophenol
4-nitrophenol
Dibenzofuran
2,4-dinitrotoluene (AB)
2,6-dinitrotoluene (AB)
4-chlorophenyl-phenyether
4-nitroaniline (AB)
4,6-dinitro-2-methylphenol (AB)
n-Nitrosodiphenylamine
4-bromophenyl-phenyether
Pentachlorophenol
Benzidine
3,3'-dichlorobenzidine
Benzo(a)anthracene
Benzo(b)fluoranthene
Benzo(k)fluoranthene
4-Methylphenol
N-Nitro-Di-n-Propylamine
Hexachloroethane
Nitrobenzene
Isophorone (AB)
2-Nitrophenol
Hexachlorobenzene
bis (2-Ethylhexy) Phthalate (AB)
Dibenz (a,H)Anthracene
Benzo (g, h, i) Perylene
Aldrin
alpha-BHC
ß-BHC
gamma-BHC
delta-BHC
Chlordane (AB)
4,4'-DDD
4,4'-DDE
4,4'-DDT
Dieldrin
Endosulfan I (AB)
Endosulfan II (AB)
Endosulfan sulfate (AB)
Endrin (AB)
Endrin aldehyde (AB)
Heptachlor
Heptachlor epoxide (AB)
Toxaphene (AB)

PCB's:
Trichlorobiphenyl
Tetrachlorobiphenyl
Pentachlorobiphenyl
Hexachlorobiphenyl
Heptachlorobiphenyl
Octachlorobiphenyl

(AB) Current analysis cannot recover these compounds. They will be included should methods change.

STATIONS: There are 22 stations located in the mainstem, 37 stations located in the tidal tributaries and an additional nine stations within the Patapsco River (Baltimore Harbor).

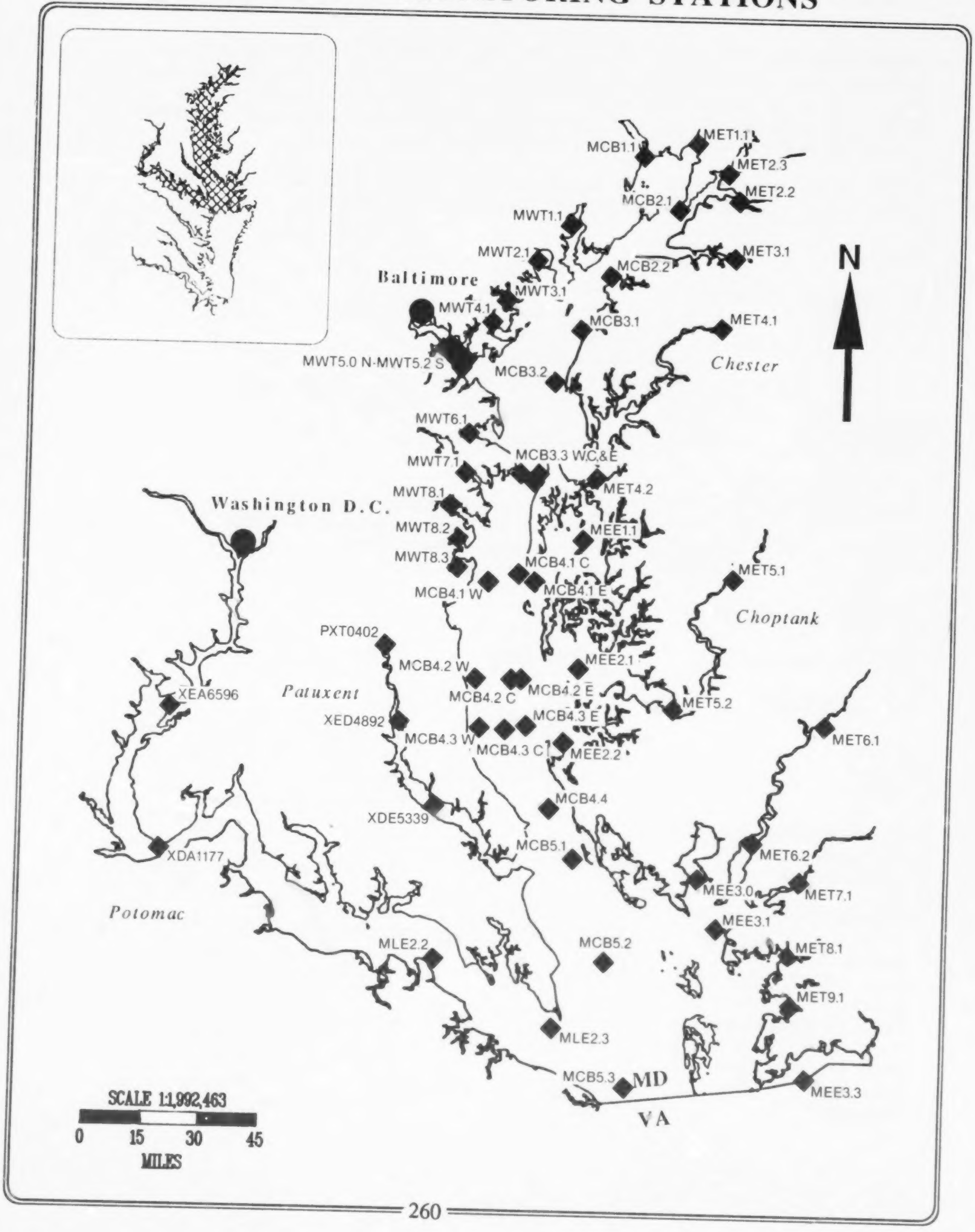
SAMPLE COLLECTION: These mainstem stations are sampled every 3-5 years with the tidal tributary stations and Baltimore harbor stations being sampled annually. At each station, three replicated sediment samples are obtained with a Van Veen grab sampler. The top 2 centimeters are collected from each grab sample. Samples are homogenized in the field and stored in three glass containers. One sample is frozen and two are refrigerated. Equal portions from the triplicate grab samples are weighed out, composited and homogenized in the laboratory just prior to analysis.

PROGRAM INTEGRATION: Most of the 22 stations sampled within this program are sampled routinely for various water quality parameters as part of the larger Maryland Chesapeake Bay Mainstem and Tributary Water Quality Monitoring Programs.

MARYLAND CHESAPEAKE BAY SEDIMENT TOXICANT MONITORING STATIONS

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
MCB1.1	39 32 41	76 04 54	CB-1	CHESBAY	UPPER CHESAPEAKE BAY	2060001	MOUTH OF SUSQUEHANNA RIVER
MCB2.1	39 26 24	76 01 30	CB-2	CHESBAY	UPPER CHESAPEAKE BAY	2060001	SOUTHWEST OF TURKEY POINT
MCB2.2	39 20 48	76 10 30	CB-2	CHESBAY	UPPER CHESAPEAKE BAY	2060001	WEST OF STILL POND NEAR BUOY R
MCB3.1	39 14 53	76 14 17	CB-3	CHESBAY	UPPER CHESAPEAKE BAY	2060001	SE OF GUNPOWDER NECK BTN BS 24A
MCB3.2	39 09 47	76 18 23	CB-3	CHESBAY	UPPER CHESAPEAKE BAY	2060001	NW OF SWAN PT. NEAR BUOY R10
MCB3.3C	38 59 42	76 21 35	CB-4	CHESBAY	UPPER CHESAPEAKE BAY	2060001	NORTH OF BAY BRIDGE
MCB3.3E	39 00 06	76 20 47	CB-4	CHESBAY	UPPER CHESAPEAKE BAY	2060001	NORTHEAST OF BAY BRIDGE
MCB3.3W	39 00 11	76 23 18	CB-4	CHESBAY	UPPER CHESAPEAKE BAY	2060001	NORTHWEST OF BAY BRIDGE
MCB4.1C	38 49 30	76 24 00	CB-4	CHESBAY	UPPER CHESAPEAKE BAY	2060001	SOUTHWEST OF KENT POINT
MCB4.1E	38 48 59	76 22 17	EE-1	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	SOUTH OF KENT POINT
MCB4.1W	38 48 48	76 27 47	CB-4	CHESBAY	UPPER CHESAPEAKE BAY	2060001	SOUTHEAST OF HORSHOE POINT
MCB4.2C	38 38 41	76 25 05	CB-4	CHESBAY	UPPER CHESAPEAKE BAY	2060001	SW OF TILGHMAN ISLAND NFAR BUOY
MCB4.2E	38 38 41	76 24 01	CB-4	CHESBAY	UPPER CHESAPEAKE BAY	2060001	SW OF TILGHMAN ISLAND
MCB4.2W	38 38 36	76 30 06	CB-4	CHESBAY	UPPER CHESAPEAKE BAY	2060001	NORTHWEST OF PLUM POINT
MCB4.3C	38 33 23	76 26 06	CB-4	CHESBAY	UPPER CHESAPEAKE BAY	2060001	E OF DARES BEACH NEAR BUOY R 64
MCB4.3E	38 33 23	76 23 24	CB-4	CHESBAY	UPPER CHESAPEAKE BAY	2060001	MOUTH OF CHOPTANK RIVER
MCB4.3W	38 33 23	76 29 36	CB-4	CHESBAY	UPPER CHESAPEAKE BAY	2060001	EAST OF DARES BEACH
MCB4.4	38 24 47	76 20 36	CB-4	CHESBAY	UPPER CHESAPEAKE BAY	2060001	NORTHEAST OF COVE POINT
MCB5.1	38 19 06	76 17 35	CB-5	CHESBAY	UPPER CHESAPEAKE BAY	2060001	E OF CEDAR PT. EAST OF PR BUOY
MCB5.2	38 08 12	76 13 42	CB-5	CHESBAY	UPPER CHESAPEAKE BAY	2060001	E OF PT. NO POINT
MCB5.3	37 54 42	76 10 05	CB-5	CHESBAY	UPPER CHESAPEAKE BAY	2060001	NE OF SMITH PT. AT VA STATE LIN
MEE1.1	38 52 49	76 15 17	EE-1	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	E BAY BET TILGH PT-PAR IS/N B.
MEE2.1	38 39 28	76 16 11	EE-2	EASTERN SHORE	CHOPTANK	2060005	CHOP. EMBAY MDWY BET B BNW63B A
MEE2.2	38 31 34	76 18 29	EE-2	EASTERN SHORE	CHOPTANK	2060005	LITTLE CHOPTANK R W OF RAG PT/W
MEE3.0	38 16 53	76 01 01	EE-3	CHESBAY	UPPER CHESAPEAKE BAY	2060001	HONGA R/SW OF CRABPT/NR BELL B.
MEE3.1	38 11 40	75 58 38	EE-3	CHESBAY	UPPER CHESAPEAKE BAY	2060001	N TANGIER SOUND / 100YDS. N BUO
MEE3.3	37 56 00	75 46 00	EE-3	CHESBAY	UPPER CHESAPEAKE BAY	2060001	POCOMOKE SOUND / ST. LINE/BUOY
MET1.1	39 34 05	75 58 13	ET-1	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	NE R AT BUOY, FER 14 OFF CHARLE
MET2.2	39 28 10	75 52 40	ET-2	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	BOHEMIA R. NR. RTE. 213 BRIDGE
MET2.3	39 30 26	75 53 50	ET-2	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	ELK RIVER AT CONF BOHEMIA R BUO
MET3.1	39 21 51	75 53 59	ET-3	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	SASSAFRAS RIVER NEAR RTE. 213 B
MET4.1	39 14 43	75 55 37	BFL	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	CHESTER RIVER
MET4.2	38 59 23	76 12 59	ET-4	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	LO CHESTER R S OF E NECK IS, BU
MET5.1	38 48 25	75 54 44	ET-5	EASTERN SHORE	CHOPTANK	2060005	CHOPTANK RIVER
MET5.2	38 34 52	76 03 52	ET-5	EASTERN SHORE	CHOPTANK	2060005	LOWER CHOPTANK RIVER NEAR RT. 5
MET6.1	38 32 31	75 43 31	ET-6	EASTERN SHORE	NANTICOKE	2060008	NANTICOKE RIVER
MET6.2	38 20 25	75 53 30	ET-6	EASTERN SHORE	NANTICOKE	2060008	LOWER NANICOKE R., E OF SANDY P
MET7.1	38 15 57	75 47 29	BFL	EASTERN SHORE	BLACKWATER-WICOMICO	2060007	LOWER WICOMICO RIVER AT WHITEHA
MET8.1	38 08 13	75 49 04	ET-8	EASTERN SHORE	POCOMOKE	2060009	MANOKIN RIVER SOUTH OF LOCUST P
MET9.1	38 03 16	75 49 10	ET-9	EASTERN SHORE	POCOMOKE	2060009	BIG ANNEM. R/NW LONPT/250Y E DA
MLE2.2	38 09 29	76 35 55	LE-2	POTOMAC	LOWER POTOMAC	2070011	POTOMAC RIVER OFF RAGGED PT/BUO
MLE2.3	38 01 17	76 20 53	LE-2	POTOMAC	LOWER POTOMAC	2070011	MOUTH OF POTOMAC RIVER
MWT1.1	39 26 08	76 15 02	BFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	BUSH RIVER EAST OF GUM PT. AT F
MWT2.1	39 22 37	76 20 16	WT-2	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	GUNPOW. R. 200YDS E OLIV. PT DA
MWT3.1	39 18 22	76 24 41	WT-3	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	MIDDLE R. S OF BOWLEY PT. AT BU
MWT4.1	39 16 28	76 26 41	WT-4	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	BACK R E OF STANSBURY PT DAY BE
MWT5.0N	39 14 01	76 32 26	WT-5	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	PATAPSCO RIVER
MWT5.0S	39 13 30	76 32 59	WT-5	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	PATAPSCO RIVER
MWT5.1C	39 12 47	76 31 34	WT-5	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	PATAPSCO RIVER
MWT5.1N	39 13 14	76 31 28	WT-5	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	PATAPSCO R NORTH OF MWT5.1 ALON
MWT5.1S	39 12 44	76 31 58	WT-5	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	PATAPSCO R SOUTH OF MWT5.1 ALON
MWT5.2C	39 12 03	76 30 48	WT-5	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	PATAPSCO RIVER
MWT5.2N	39 12 30	76 30 28	WT-5	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	PATAPSCO RIVER
MWT5.2S	39 11 52	76 31 31	WT-5	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	PATAPSCO RIVER
MWT5.0C	39 13 46	76 33 32	WT-5	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	PATAPSCO RIVER IN CHANNEL AT BU
MWT6.1	39 04 34	76 30 00	WT-6	WEST CHESAPEAKE	SEVERN	2060004	MAGOTHY R. NW OF FERRY PT BUOY
MWT7.1	39 00 31	76 30 35	WT-7	WEST CHESAPEAKE	SEVERN	2060004	SEVERN R 200YDS UPSTREAM OF RT
MWT8.1	38 57 01	76 32 56	WT-8	WEST CHESAPEAKE	SEVERN	2060004	SOUTH R. S OF POPLAR PT AT DAYM
MWT8.2	38 53 12	76 32 16	WT-8	WEST CHESAPEAKE	SEVERN	2060004	RHODE R. BTWN FLAT IS. AND BIG
MWT8.3	38 50 41	76 32 12	WT-8	WEST CHESAPEAKE	SEVERN	2060004	WEST R. UPSTREAM OF DAYMARKER 6
PXT0402	38 42 22	76 42 04	TF-1	WEST CHESAPEAKE	SEVERN	2060006	PATUXENT RIVER MIDCH. AT NOTTIN
XDA1177	38 21 08	77 12 31	RET-2	POTOMAC	LOWER POTOMAC	2070011	POTOMAC MIDCH. OFF MD PT BUOY 1
XDE5339	38 25 18	76 36 04	LE-1	PATUXENT	PATUXENT	2060006	PATUXENT R MIDCH /SSW JACK BAY
XEA6596	38 36 32	77 10 44	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	POTOMAC RIVER MIDCH. OFF IND AT
XED4892	38 34 32	76 40 30	TF-1	WEST CHESAPEAKE	SEVERN	2060006	PATUXENT RIVER MIDCH/SSE FR JAC

MARYLAND CHESAPEAKE BAY SEDIMENT TOXICANT MONITORING STATIONS



HART-MILLER ISLAND SEDIMENT MONITORING PROGRAM

PROGRAM DESCRIPTION: The Hart-Miller Island Sediment Monitoring Program is designed to continually assess the environmental effects of constructing and utilizing a diked containment facility at Hart-Miller Island which receives bottom sediments dredged from Baltimore Harbor and its approaches. Through this monitoring program, chemical analysis is performed on box core and surficial sediment samples in the spring and fall of each year.

PROGRAM OBJECTIVES: To examine metal and organic contaminants in sediments surrounding the Hart-Miller Island Dredged Material Containment facility.

DATE INITIATED: 1981

COORDINATING AGENCY:

Maryland Department of Natural Resources
Tidewater Administration
Tawes State Office Building
Annapolis, Maryland 21401

FUNDING AGENCY: Maryland Port Administration

PARTICIPATING AGENCIES:

Chesapeake Biological Laboratories (CBL)
Maryland Department of Natural Resources (MDDNR)
Maryland Environmental Service (MES)
Maryland Geological Survey (MGS)

INVESTIGATORS:

Program Coordinator	Pete Dunbar	MDDNR

PARAMETERS:

% Silt
% Sand
% Clay

Organic Analyses:
Acenaphthene
Acenaphthylene
Aldrin
Alpha BHC
Anthracene
Beta BHC
Gamma BHC (Lindane)
Benzo (a) anthracene
Benzo (b) flouranthene
Benzo (k) flouranthene
Benzo (g,h,i) perylene
Chlordane
Chrysene
4,4'-DDD
4,4'-DDE
4,4'-DDT
Dibenzo (a,h) anthracene
Dieldrin
Endrin
Flouranthene
Flourene
Heptachlor
Heptachlor Epoxide
Ideno (1,2,3-cd) pyrene
Naphthalene
PCBs, Total
Phenanthrene
Bis (2-Ethylhexyl) Phthalate
Butyl Benzyl Phthalate
Di-n-butyl Phthalate
Diethyl Phthalate

Dimenthyl Phthalate
Di-n-octyl Phthalate
Pyrene
Toxaphene

Gas Chromatography/Mass Spectrometry analysis for:
Herbicides
Pesticides
Polychlorinated Biphenyls (PCBs)
Polynuclear Aromatic Compounds (PAHs)

Metals:
Chromium
Copper
Iron
Manganese
Nickel
Zinc

STATIONS: There are approximately 30 surficial sediment stations and seven box core stations. Stations do change slightly from year to year. Those listed were sampled in 1986-1987.

SAMPLE COLLECTION: Field sampling is conducted twice a year in the spring and the fall. At each surficial sediment station, two grab samples of the top 8-10 cm of the sediments are collected with a dip-galvanized VanVeen sampler, one for textural and trace metals analysis, and one for organic contaminant analysis. Trace metal subsamples were taken several cm into the grab and away from the sides using plastic ware. Samples for organic analyses are taken using stainless steel or aluminum devices and stored in glass containers.

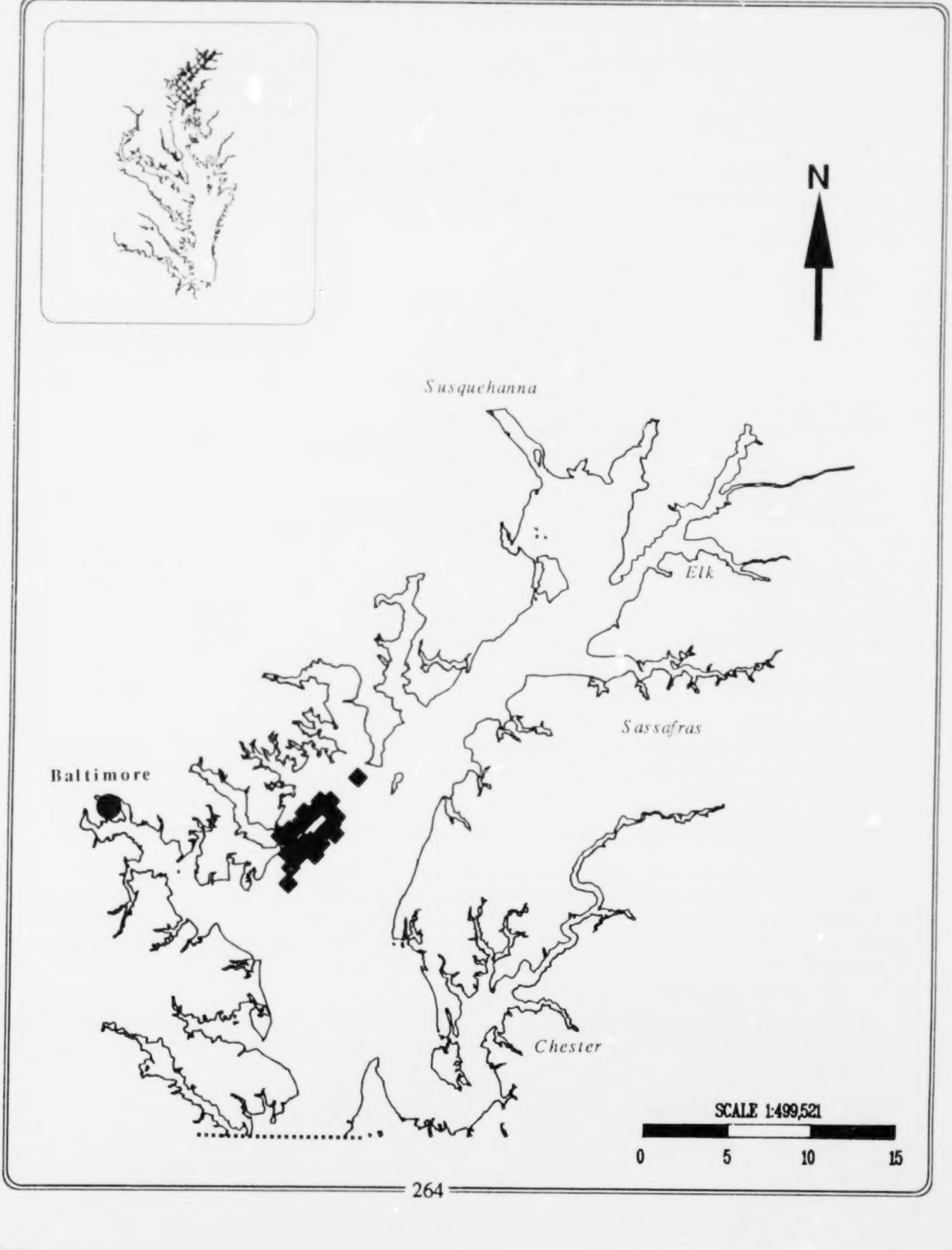
At each of the Box Core stations, one core sample is collected by use of a benthos-type gravity corer. Visual and radiographic observations of the cores are then made.

PROGRAM INTEGRATION: The Hart-Miller Island Sediment Monitoring Program is coordinated by MDDNR in conjunction with the Hart-Miller Benthic Monitoring Programs. In addition, water quality at the containment facility is monitored by the Maryland Environmental Service.

HART-MILLER ISLAND SEDIMENT MONITORING STATIONS

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
XIF2038	39 12 00	76 23 48	CB-3	CHESBAY	UPPER CHESAPEAKE BAY	2060001	SURFICIAL SEDIMENT STATIONS
XIF3064	39 13 01	76 23 36	CB-3	CHESBAY	UPPER CHESAPEAKE BAY	2060001	SURFICIAL SEDIMENT STATIONS
XIF3430	39 13 24	76 22 58	CB-3	CHESBAY	UPPER CHESAPEAKE BAY	2060001	SURFICIAL SEDIMENT STATIONS
XIF3620	39 13 34	76 21 59	CB-3	CHESBAY	UPPER CHESAPEAKE BAY	2060001	SURFICIAL SEDIMENT STATIONS
XIF3638	39 13 35	76 23 45	CB-3	CHESBAY	UPPER CHESAPEAKE BAY	2060001	SURFICIAL SEDIMENT STATIONS
XIF4016	39 13 58	76 21 35	CB-3	CHESBAY	UPPER CHESAPEAKE BAY	2060001	SURFICIAL SEDIMENT STATIONS
XIF4024	39 14 02	76 22 21	CB-3	CHESBAY	UPPER CHESAPEAKE BAY	2060001	BOX CORE STATIONS
XIF4126	39 14 08	76 22 36	CB-3	CHESBAY	UPPER CHESAPEAKE BAY	2060001	SURFICIAL SEDIMENT STATIONS
XIF4221	39 14 13	76 22 07	CB-3	CHESBAY	UPPER CHESAPEAKE BAY	2060001	SURFICIAL SEDIMENT STATIONS
XIF4285	39 14 12	76 21 11	CB-3	CHESBAY	UPPER CHESAPEAKE BAY	2060001	BOX CORE STATIONS
XIF4317	39 14 19	76 21 39	CB-3	CHESBAY	UPPER CHESAPEAKE BAY	2060001	SURFICIAL SEDIMENT STATIONS
XIF4337	39 14 17	76 23 40	CB-3	CHESBAY	UPPER CHESAPEAKE BAY	2060001	SURFICIAL SEDIMENT STATIONS
XIF4405	39 14 22	76 20 29	CB-3	CHESBAY	UPPER CHESAPEAKE BAY	2060001	SURFICIAL SEDIMENT STATIONS
XIF4609	39 14 37	76 20 55	CB-3	CHESBAY	UPPER CHESAPEAKE BAY	2060001	SURFICIAL SEDIMENT STATIONS
XIF4615	39 14 36	76 21 29	CB-3	CHESBAY	UPPER CHESAPEAKE BAY	2060001	BOX CORE STATIONS
XIF4642	39 14 36	76 24 14	CB-3	CHESBAY	UPPER CHESAPEAKE BAY	2060001	SURFICIAL SEDIMENT STATIONS
XIF4703	39 14 42	76 20 20	CB-3	CHESBAY	UPPER CHESAPEAKE BAY	2060001	BOX CORE STATIONS
XIF4806	39 14 49	76 20 34	CB-3	CHESBAY	UPPER CHESAPEAKE BAY	2060001	SURFICIAL SEDIMENT STATIONS
XIF4964	39 14 56	76 23 38	CB-3	CHESBAY	UPPER CHESAPEAKE BAY	2060001	BOX CORE STATIONS
XIF5009	39 14 58	76 20 51	CB-3	CHESBAY	UPPER CHESAPEAKE BAY	2060001	SURFICIAL SEDIMENT STATIONS
XIF5010	39 15 01	76 20 58	CB-3	CHESBAY	UPPER CHESAPEAKE BAY	2060001	SURFICIAL SEDIMENT STATIONS
XIF5203	39 15 10	76 20 19	CB-3	CHESBAY	UPPER CHESAPEAKE BAY	2060001	SURFICIAL SEDIMENT STATIONS
XIF5232	39 15 10	76 23 10	CB-3	CHESBAY	UPPER CHESAPEAKE BAY	2060001	SURFICIAL SEDIMENT STATIONS
XIF5302	39 15 20	76 20 10	CB-3	CHESBAY	UPPER CHESAPEAKE BAY	2060001	SURFICIAL SEDIMENT STATIONS
XIF5305	39 15 18	76 20 31	CB-3	CHESBAY	UPPER CHESAPEAKE BAY	2060001	SURFICIAL SEDIMENT STATIONS
XIF5427	39 15 25	76 22 41	CB-3	CHESBAY	UPPER CHESAPEAKE BAY	2060001	SURFICIAL SEDIMENT STATIONS
XIF5501	39 15 28	76 20 07	CB-3	CHESBAY	UPPER CHESAPEAKE BAY	2060001	SURFICIAL SEDIMENT STATIONS
XIF5505	39 15 27	76 20 31	CB-3	CHESBAY	UPPER CHESAPEAKE BAY	2060001	SURFICIAL SEDIMENT STATIONS
XIF5722	39 15 42	76 22 14	CB-3	CHESBAY	UPPER CHESAPEAKE BAY	2060001	SURFICIAL SEDIMENT STATIONS
XIF5793	39 15 22	76 20 37	CB-3	CHESBAY	UPPER CHESAPEAKE BAY	2060001	SURFICIAL SEDIMENT STATIONS
XIF5805	39 15 49	76 20 30	CB-3	CHESBAY	UPPER CHESAPEAKE BAY	2060001	SURFICIAL SEDIMENT STATIONS
XIF5917	39 15 51	76 21 43	CB-3	CHESBAY	UPPER CHESAPEAKE BAY	2060001	SURFICIAL SEDIMENT STATIONS
XIF5925	39 15 51	76 22 32	CB-3	CHESBAY	UPPER CHESAPEAKE BAY	2060001	BOX CORE STATIONS
XIF6008	39 16 01	76 20 49	CB-3	CHESBAY	UPPER CHESAPEAKE BAY	2060001	SURFICIAL SEDIMENT STATIONS
XIF6388	39 16 16	76 21 11	CB-3	CHESBAY	UPPER CHESAPEAKE BAY	2060001	BOX CORE STATIONS
XIF6407	39 16 22	76 20 41	CB-3	CHESBAY	UPPER CHESAPEAKE BAY	2060001	SURFICIAL SEDIMENT STATIONS
XIG7589	39 17 30	76 18 54	CB-3	CHESBAY	UPPER CHESAPEAKE BAY	2060001	SURFICIAL SEDIMENT STATIONS

HART-MILLER ISLAND SEDIMENT MONITORING STATIONS



VIRGINIA CHESAPEAKE BAY MAINSTEM SEDIMENT MONITORING PROGRAM

PROGRAM DESCRIPTION: The Virginia Chesapeake Bay Mainstem Sediment Monitoring Program was initiated in 1984 by the Virginia Water Control Board to monitor for toxic organic components including polycyclic aromatic hydrocarbons (PAHs). Surface sediment samples are collected at eight stations every three to five years.

PROGRAM OBJECTIVES: To establish a baseline and monitor long-term trends of toxic organic compounds in the sediments of the Chesapeake Bay.

DATE INITIATED: 1984

COORDINATING AGENCY:

Virginia Water Control Board
Chesapeake Bay Office
2111 North Hamilton Street
Richmond, Virginia 23230

FUNDING AGENCIES:

Virginia Water Control Board
U.S. EPA Chesapeake Bay Liaison Office

PARTICIPATING AGENCIES:

Virginia Water Control Board (VWCB)
Virginia Institute of Marine Science (VIMS)

INVESTIGATORS:

Program Manager	Frederick Hoffman	VWCB
Principal Investigator	Robert Huggett	VIMS

PARAMETERS:

Compound name
Compound chemical abstract name (CAS)
Concentration of compound
Aromatic retention index

STATIONS: There are eight stations located in the Virginia mainstem Chesapeake Bay.

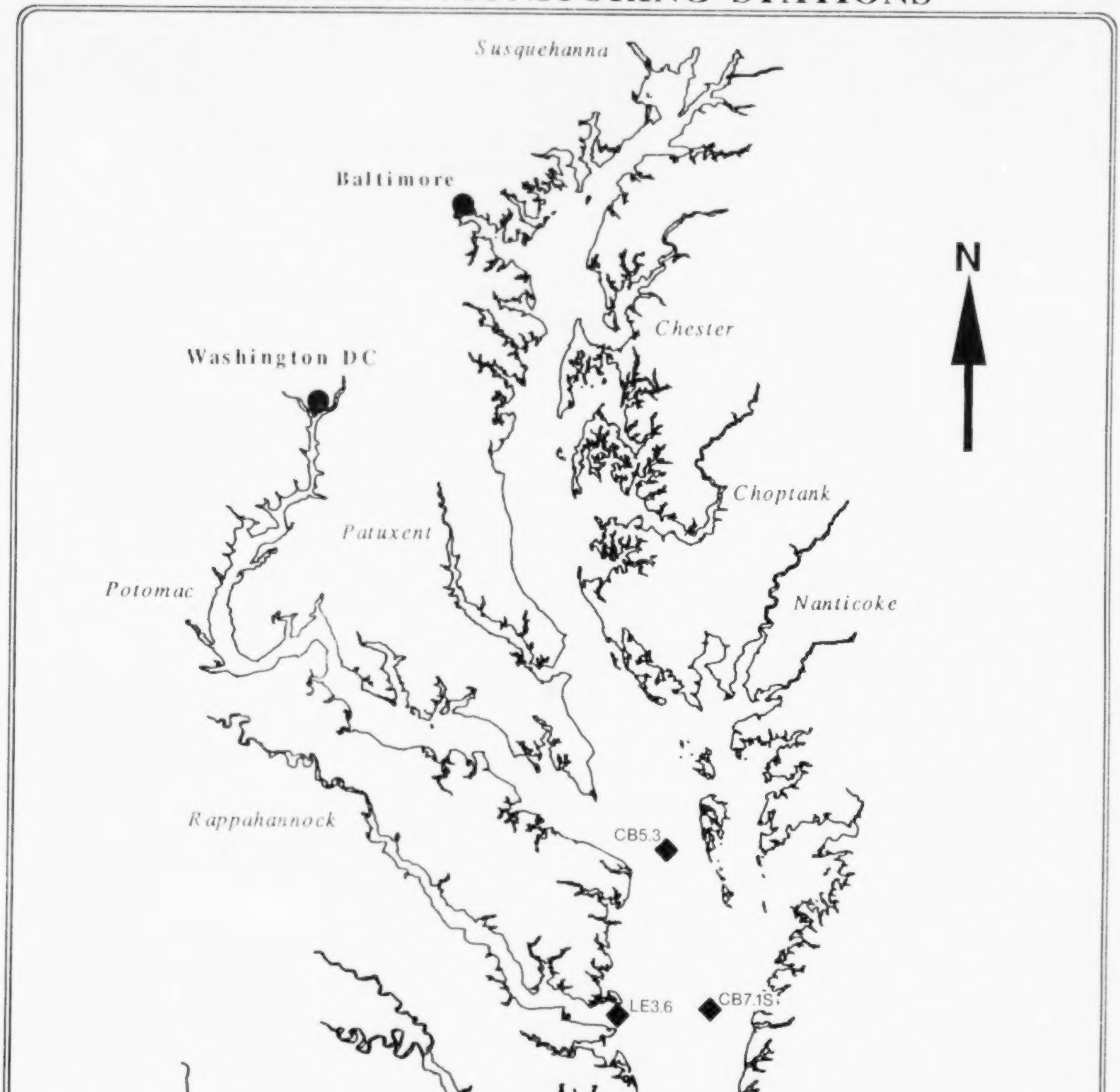
SAMPLE COLLECTION: Sediments are collected every three to five years. Samples are collected with a clean stainless steel Smith MacIntyre grab sampler. The top 2 cm of sediment is transferred to glass jars which are refrigerated until they are returned to the laboratory (within eight hours). The samples are freeze dried, soxhlet extracted with dichloromethane, fractionated by gel permeation chromatography and high performance liquid chromatography, and analyzed by capillary gas chromatography.

PROGRAM INTEGRATION: The sediment stations are a subset of the Virginia Chesapeake Bay Mainstem Monitoring Program stations which are routinely sampled for water quality parameters.

VIRGINIA CHESAPEAKE BAY MAINSTEM SEDIMENT MONITORING STATIONS

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
1	36 59 48	76 18 12	CB-8	CHESBAY	LOWER CHESAPEAKE BAY	2080101	MOUTH OF THE JAMES RIVER
3	36 56 42	76 01 30	CB-8	CHESBAY	LOWER CHESAPEAKE BAY	2080101	THIMBLE SHOALS CHANNEL AT BAY B
7	37 13 43	76 03 15	CB-7	CHESBAY	LOWER CHESAPEAKE BAY	2080101	LOWER EASTERN SHORE CHANNEL ARE
CB5.3	37 54 42	76 10 00	CB-5	CHESBAY	UPPER CHESAPEAKE BAY	2060001	CENTRAL CHESAPEAKE BAY
CB7.1S	37 34 52	76 03 30	CB-7	CHESBAY	LOWER CHESAPEAKE BAY	2080101	LOWER EAST CENTRAL CHESAPEAKE B
LE3.6	37 35 48	76 17 06	CB-6	CHESBAY	LOWER CHESAPEAKE BAY	2080101	RAPPAHANNOCK RIVER
WE4.1	37 18 42	76 20 48	WE-4	YORK	GREAT WICOMICO-PIANKATANK	2080102	MOBJACK BAY CENTRAL
WE4.2	37 14 30	76 23 12	WE-4	YORK	GREAT WICOMICO-PIANKATANK	2080102	MOBJACK BAY MOUTH OF YORK

VIRGINIA CHESAPEAKE BAY MAINSTEM SEDIMENT MONITORING STATIONS



VIRGINIA CHESAPEAKE BAY TRIBUTARY SEDIMENT MONITORING PROGRAM

PROGRAM DESCRIPTION: The Virginia Chesapeake Bay Tributary Sediment Monitoring Program is concerned with the accumulation of toxic compounds in tributary sediments. Since the upper reaches of the James River have been studied in other projects only two stations in the river were incorporated in this program. Sampling was conducted in 1984 and 1985. Due to low levels of temporal variations in the characteristics of the substances found, subsequent sampling is not planned until 1990.

PROGRAM OBJECTIVE: To assess the levels of potentially toxic organic compounds in the sediments of Virginia's major tributaries to the Chesapeake Bay.

DATE INITIATED: March 1985

COORDINATING AGENCIES:

Virginia Water Control Board
Chesapeake Bay Office
2111 North Hamilton Street
Richmond, Virginia 23230

FUNDING AGENCY: Virginia Water Control Board

PARTICIPATING AGENCIES:

Virginia Water Control Board (VWCB)
Virginia Institute of Marine Science (VIMS)

INVESTIGATORS:

Program Manager	Frederick Hoffman	VWCB
Principal Investigator	Robert Huggett	VIMS

PARAMETERS:

Compound name
Compound chemical abstract name (CAS)
Concentration of compound
Aromatic retention index

STATIONS: Eighteen stations are located in the James, York, and Rappahannock rivers and their respective tributaries.

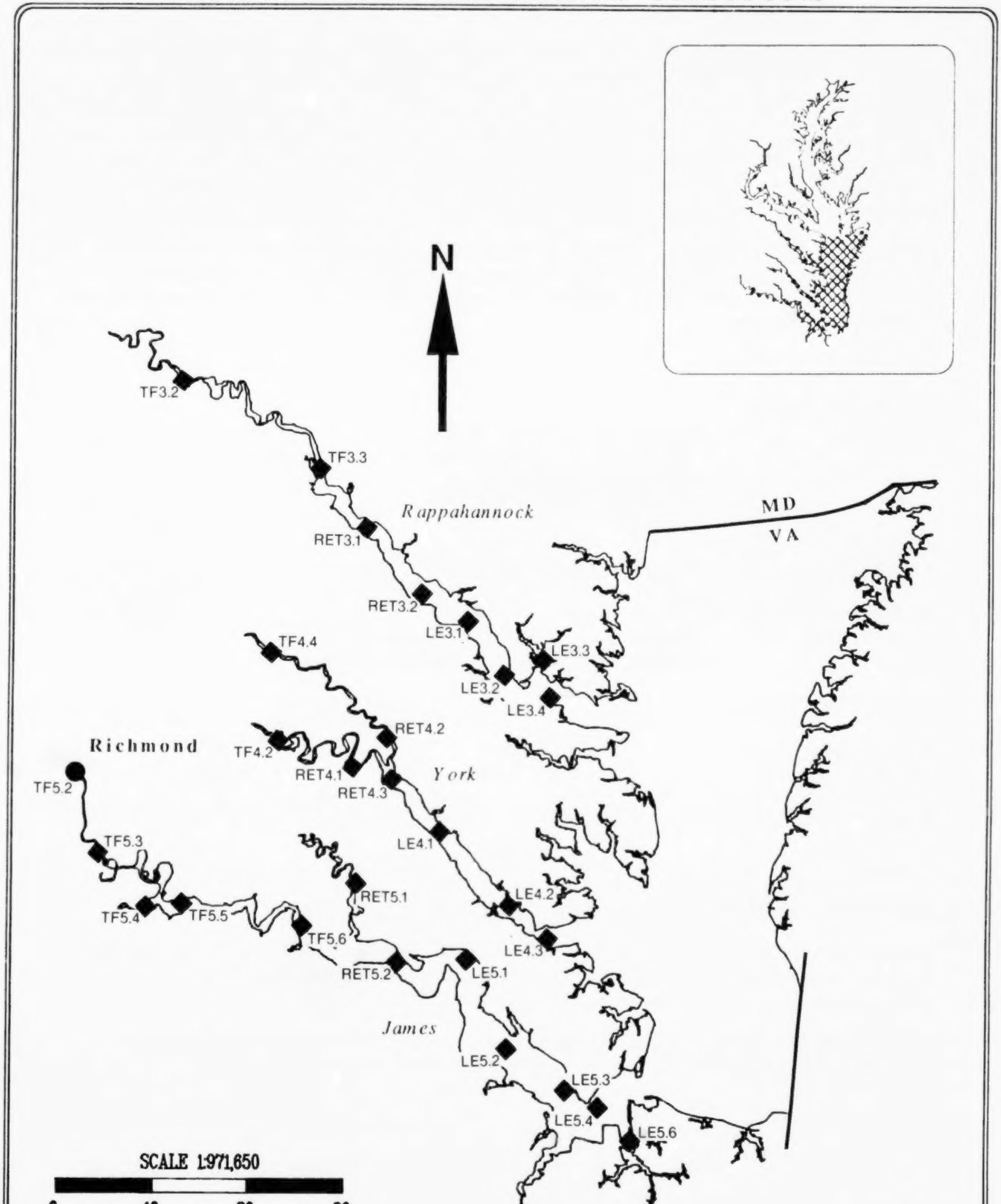
SAMPLE COLLECTION: Samples are collected with a stainless steel Smith MacIntyre grab sampler. The top 2 centimeters of sediment are directly transferred to glass jars which are refrigerated until they are returned to the laboratory (within eight hours). The samples are freeze dried, soxhlet extracted with dichloromethane, fractionated by gel permeation chromatography and high performance liquid chromatography and analyzed by capillary gas chromatography.

PROGRAM INTEGRATION: The sediment stations are a subset of those sampled as part of the ongoing Virginia Chesapeake Bay tributary water quality monitoring program.

VIRGINIA CHESAPEAKE BAY TRIBUTARY SEDIMENT MONITORING STATIONS

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
LE3.1	37 45 38	76 37 16	LE-3	RAPPAHANNOCK	LOWER RAPPAHANNOCK	2080104	AT BUOY #11
LE3.2	37 40 13	76 33 16	LE-3	RAPPAHANNOCK	LOWER RAPPAHANNOCK	2080104	LONG POINT UPSTREAM OF BUOY #R8
LE3.3	37 41 36	76 28 24	LE-3	RAPPAHANNOCK	LOWER RAPPAHANNOCK	2080104	CORROTOMAN R., BUOY #R6
LE3.4	37 38 00	76 27 48	LE-3	RAPPAHANNOCK	LOWER RAPPAHANNOCK	2080104	ORCHARD PT
LE4.1	37 25 06	76 41 36	RET-4	YORK	YORK	2080107	AT BOUY #N44
LE4.2	37 17 30	76 33 30	LE-4	YORK	YORK	2080107	AT BOUY #N34
LE4.3	37 14 06	76 29 06	LE-4	YORK	YORK	2080107	AT BOUY #2
LE5.1	37 12 24	76 39 06	LE-5	JAMES	LOWER JAMES	2080206	RED BUOY #36
LE5.2	37 03 28	76 35 00	LE-5	JAMES	LOWER JAMES	2080206	BOUY #C12-13
LE5.3	36 59 24	76 27 35	LE-5	JAMES	LOWER JAMES	2080206	NH-15 JAMES RIVER BRIDGE
LE5.4	36 57 18	76 23 30	LE-5	JAMES	LOWER JAMES	2080206	BUOY #9, HAMPTON ROADS
LE5.6	36 54 12	76 20 00	LE-5	JAMES	LOWER JAMES	2080206	RED BUOY # 18
RET3.1	37 55 12	76 49 18	RET-3	RAPPAHANNOCK	LOWER RAPPAHANNOCK	2080104	NORTH OF BUOY R10
RET3.2	37 48 30	76 42 48	RET-3	RAPPAHANNOCK	LOWER RAPPAHANNOCK	2080104	AT BOUY #N16
RET4.1	37 31 30	76 52 12	TF-4	YORK	PAMUNKEY	2080106	SOUTHERN END LEE MARSH - PAMUNK
RET4.2	37 34 18	76 47 36	RET-4	YORK	YORK	2080107	MUDDY POINT - MATTAPONI RIVER
RET4.3	37 30 24	76 47 18	RET-4	YORK	YORK	2080107	AT BOUY #C57
RET5.1	37 20 32	76 52 23	RET-5	JAMES	LOWER JAMES	2080206	SHIPYARD LAND, JRWQMP STA # 25
RET5.2	37 12 36	76 47 36	RET-5	JAMES	LOWER JAMES	2080206	SWANN'S PT, JRWQMP STA #19
TF3.2	38 10 29	77 11 19	TF-3	RAPPAHANNOCK	LOWER RAPPAHANNOCK	2080104	NEAR PORT ROYAL BRIDGE, #N74
TF3.3	38 01 07	76 54 30	TF-3	RAPPAHANNOCK	LOWER RAPPAHANNOCK	2080104	AT BOUY #N40
TF4.4	37 43 22	77 01 26	TF-4	YORK	PAMUNKEY	2080106	WALKERTON - MATTAPONI RIVER
TF5.2	37 31 50	77 26 02	BFL	JAMES	MIDDLE JAMES-WILLIS	2080205	MAYO'S BR., JRWQMP STA #2
TF5.3	37 24 11	77 23 31	TF-5	JAMES	LOWER JAMES	2080206	BUOY #157, JRWQMP STA #8
TF5.4	37 18 41	77 17 49	TF-5	JAMES	LOWER JAMES	2080206	BUOY #8, JRWQMP STA #20A
TF5.5	37 18 46	77 13 59	TF-5	JAMES	LOWER JAMES	2080206	RED BUOY #107, JRWQMP STA #13
TF5.6	37 16 29	76 59 19	TF-5	JAMES	LOWER JAMES	2080206	NORTH OF BUOY #74, JRWQMP STA #
TR4.2	37 34 47	77 01 19	TF-4	YORK	PAMUNKEY	2080106	WHITEHOUSE - PAMUNKEY RIVER

VIRGINIA CHESAPEAKE BAY TRIBUTARY SEDIMENT MONITORING STATIONS



VIRGINIA KEPONE SEDIMENT MONITORING PROGRAM

PROGRAM DESCRIPTION: The Virginia Kepone Monitoring Program was established as a result of the contamination of the James River and Hopewell, Virginia area by disposal and wastewater discharges of kepone. The program was initiated to asses the magnitude of the kepone contamination. In December 1975, the Virginia Kepone Task Force developed a comprehensive kepone monitoring program with responsibilities divided among the Virginia Water Control Board, the Virginia Department of Health and the Virginia Institute of Marine Science. The sediment monitoring program consists of 25 stations in the lower James River which are integrated with groundwater and finfish kepone monitoring programs.

PROGRAM OBJECTIVES: To detect any unexpected movement of the kepone reservoir downstream toward the Chesapeake Bay. To evaluate the relationship between James River dredging and disposal activities and kepone. To determine the removal or stabilization of kepone-contaminated sediment.

DATE INITIATED: 1976

COORDINATING AGENCY:

Virginia Water Control Board
Office of Environmental Research and Standards
2111 North Hamilton Street
Richmond, Virginia 23230

FUNDING AGENCY: Virginia Water Control Board

PARTICIPATING AGENCIES:

Virginia State Water Control Board (VWCB)
Virginia Institute of Marine Science (VIMS)

INVESTIGATORS:

Program Coordinator	Gail Walton	VWCB
Chemical Analysis	Harold Sloane	VIMS

PARAMETERS:

Kepone

STATIONS: There are 25 stations located throughout the tidal James River.

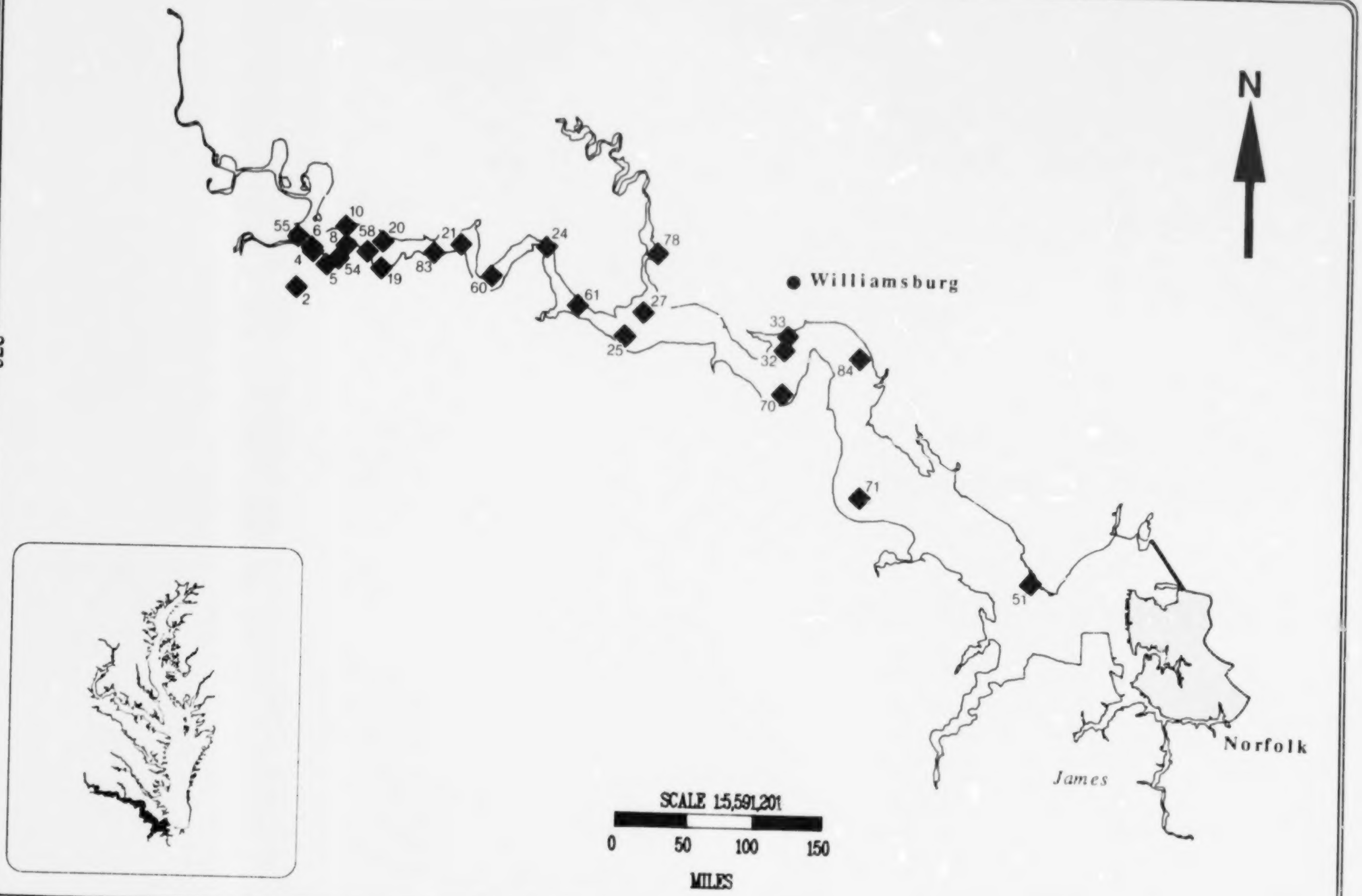
SAMPLE COLLECTION: Annual sediment samples are collected using a Phleger gravity core sampler. Prior to analysis, the frozen samples are thawed and sectioned into four to six subsamples.

PROGRAM INTEGRATION: The Virginia Kepone Sediment Monitoring Program is integrated with the ongoing groundwater and finfish kepone monitoring programs.

VIRGINIA KEPONE SEDIMENT MONITORING STATIONS

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
10	37 19 19	77 13 34	TF-5	JAMES	LOWER JAMES	2080206	NORTH SHORE JAMES RIVER, NEAR H
19	37 17 24	77 11 24	TF-5	JAMES	LOWER JAMES	2080206	MIDDLE OF TAR BAY
2	37 16 38	77 16 48	BFL	JAMES	LOWER JAMES	2080206	BAILEY CREEK DOWNSTREAM HOPEWEL
20	37 18 43	77 11 32	TF-5	JAMES	LOWER JAMES	2080206	TAR BAY AREA, MID-CHAN AT BUOYS
21	37 18 37	77 05 38	TF-5	JAMES	LOWER JAMES	2080206	WINDMILL POINT, SPOIL AREA
24	37 18 08	76 59 42	TF-5	JAMES	LOWER JAMES	2080206	JAMES RIVER, CHANNEL AT KENNON
25	37 12 47	76 54 18	RET-5	JAMES	LOWER JAMES	2080206	MOUTH OF CHICKAHOMINY RIVER AT
27	37 14 21	76 52 57	RET-5	JAMES	LOWER JAMES	2080206	MOUTH OF CHICKAHOMINY RIVER OFF
32	37 11 54	76 43 01	LE-5	JAMES	LOWER JAMES	2080206	JAMES RIVER WEST SIDE OF HOG IS
33	37 12 24	76 43 17	LE-5	JAMES	LOWER JAMES	2080206	JAMES RIVER WEST SIDE OF HOG IS
4	37 18 35	77 16 10	TF-5	JAMES	LOWER JAMES	2080206	BAILEY BAY AT CONFLUENCE OF POY
5	37 17 37	77 15 05	TF-5	JAMES	LOWER JAMES	2080206	MOUTH OF BAILEY CREEK
51	36 58 20	76 26 06	LE-5	JAMES	LOWER JAMES	2080206	OFF NEWSPORT NEWS SHIPBUILDING
54	37 18 03	77 14 12	TF-5	JAMES	LOWER JAMES	2080206	BAILEY BAY, 400 YARDS OFFSHORE
55	37 18 57	77 17 03	TF-5	JAMES	LOWER JAMES	2080206	BAILEY BAY, MUDFLAT ALONG CITY
58	37 18 18	77 12 24	TF-5	JAMES	LOWER JAMES	2080206	WEST OF INDIAN PT, 150 YARDS OF
6	37 18 12	77 15 47	TF-5	JAMES	LOWER JAMES	2080206	BAILEY BAY AT CONTINENTAL CAN C
60	37 16 34	77 03 50	TF-5	JAMES	LOWER JAMES	2080206	NE OF WEYANOKE PT DUE N OF BUOY
61	37 14 55	76 58 00	TF-5	JAMES	LOWER JAMES	2080206	MUDFLAT OFF "THE ROW", 550 YARD
70	37 09 10	76 43 32	LE-5	JAMES	LOWER JAMES	2080206	MIDDLE OF COBHAM BAY, 400 YARDS
71	37 03 14	76 38 24	LE-5	JAMES	LOWER JAMES	2080206	BURWELL BAY, 400 YARDS OFFSHORE
78	37 17 37	76 52 01	RET-5	JAMES	LOWER JAMES	2080206	CHICKAHOMINY RIVER, BUZZARD BAY
8	37 18 35	77 13 30	TF-5	JAMES	LOWER JAMES	2080206	BAILEY BAY AREA WEST OF JORDAN
83	37 18 03	77 07 56	TF-5	JAMES	LOWER JAMES	2080206	CONFLUENCE OF HERRING CREEK AND
84	37 11 25	76 38 13	LE-5	JAMES	LOWER JAMES	2080206	TRIBELL SHOAL CHANNEL BETWEEN R

VIRGINIA KEPONE SEDIMENT MONITORING STATIONS



MARYLAND SHELLFISH CONTAMINATION MONITORING PROGRAM

PROGRAM DESCRIPTION: Maryland's Shellfish Contamination Monitoring Program, comprised of a network of 37 sampling stations, monitors heavy metals and pesticides in Maryland's shellfish. Stations are selected to provide representative data in each shellfish growing area and to reflect the effects of potential pollution sources.

PROGRAM OBJECTIVES: To assure that toxic substance levels in oysters and clams do not exceed acceptable levels. To identify areas of contamination as well as spatial and temporal trends of contaminants, and to assist in identification of pollution sources. To provide baseline data on contaminant levels in marine organisms.

DATE INITIATED: 1978

COORDINATING AGENCY:

Maryland Department of the Environment
Water Management Administration
Standards and Certification Division
2500 Broening Highway
Baltimore, Maryland 21224

FUNDING AGENCIES:

Maryland Department of the Environment
U.S. EPA Region III

PARTICIPATING AGENCY: Maryland Department of the Environment (MDE)

INVESTIGATORS:

Program Coordinator	Mary Jo Garreis	MDE
Principal Investigator	Deirdre Murphy	MDE

PARAMETERS:

Shellstock:
Arsenic
Cadmium
Chromium
Copper
Lead
Mercury
Zinc
PCB-Total
PCB-1254
PCB-1260
PCB-1242
Lindane
BHC
DDE
DDT
DDD
Dieldrin
Endrin
Dacthal
Mirex
Toxaphene
Methoxychlor
Endosulphan
Heptachlor Epoxide
Heptachlor
Chlordane

STATIONS: There are 37 stations located throughout the Maryland portion of the Chesapeake Bay and its tributaries. The network has been comprised of up to 95 sites in the past. The number of stations sampled was reduced to the current 37 sites in the spring of 1987. Samples have not been collected since 1987.

SAMPLE COLLECTION: Sampling occurred each year in the spring and fall. Current data indicate that this frequency may be substantially reduced. Consideration is being given to sampling once every three years.

Composite samples from each station are comprised of 50 market-sized oysters or 60 market-sized soft clams. Samples of shellstock are collected, scrubbed clean, shucked into one liter hexane rinsed glass jars, and frozen for delivery to the laboratory.

PROGRAM INTEGRATION: N/A

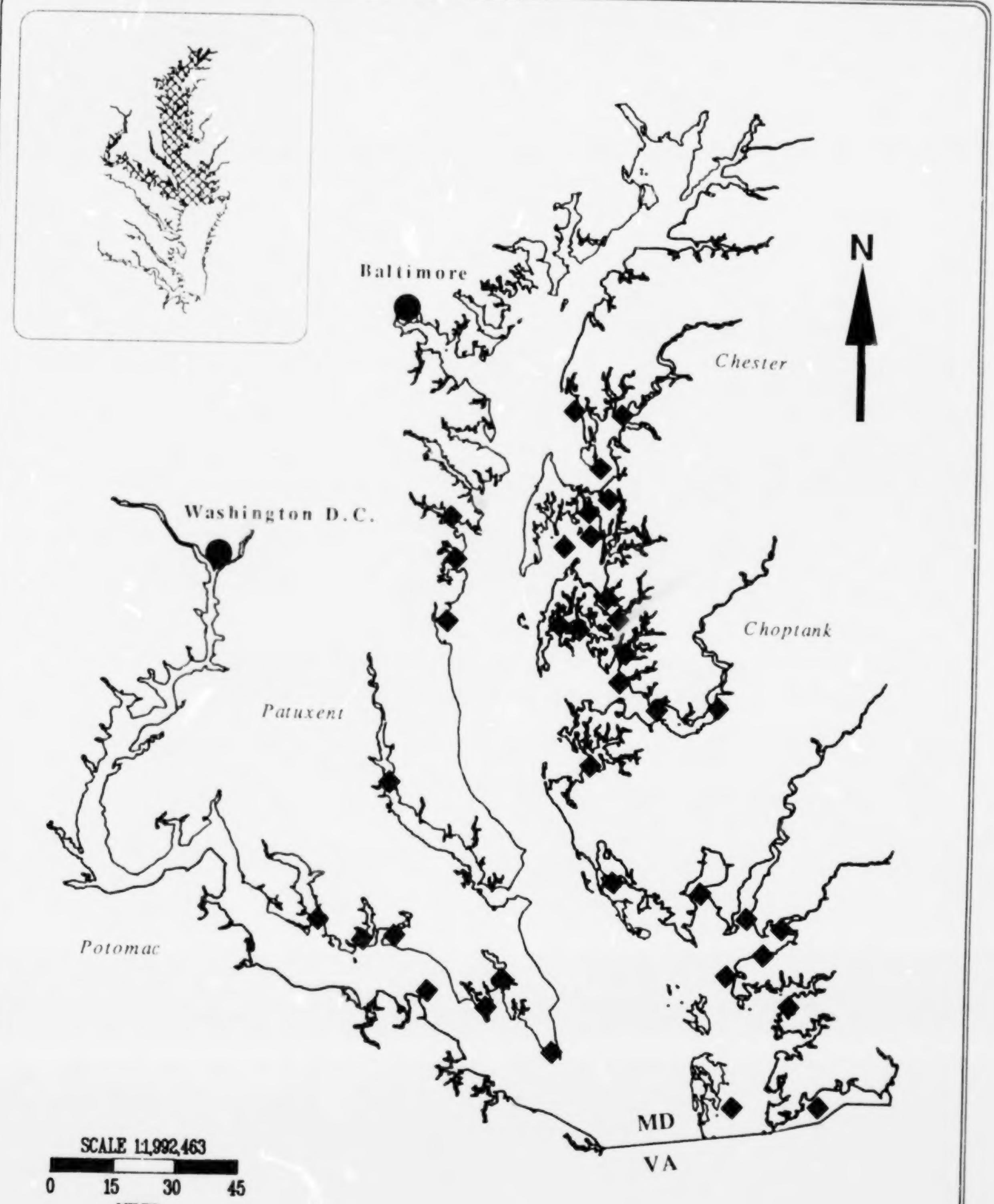
MARYLAND SHELLFISH CONTAMINATION MONITORING STATIONS (OYSTER)

STATION NAME (S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
0306006	38 56 08	76 31 [illegible]3	WT-8	WEST CHESAPEAKE	SEVERN	2060004	500 YDS N OF CEDAR POINT
0307206	38 52 12	76 31 02	WT-8	WEST CHESAPEAKE	SEVERN	2060004	DAYMARKER # 3
0402015	39 05 41	76 09 09	ET-4	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	CHESTER RIVER, 500 YDS W OF SPA
0404005	39 00 33	76 12 20	ET-4	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	75 YDS S-SW OF HAIL POINT
0501005	38 45 21	76 32 57	CB-4	CHESBAY	UPPER CHESAPEAKE BAY	2060001	DAYMARKER # 3 E IF FAIRHAVEN
0801028	38 45 50	76 10 31	EE-1	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	FLASHING LIGHT # 7, SW OF LONG
0801206	38 47 40	76 12 22	EE-1	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	NUN BUOY # 4 OFF LONGHAUL CR
0802004	38 57 52	76 11 33	BFL	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	DAYMARKER # 1 N OF BRUFFS ISLAN
0803007	38 54 02	76 14 00	EE-1	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	LIGHTED BEACON # 1 SE OF PARSON
0803010	38 55 59	76 14 09	EE-1	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	700 YDS S OF HOOD POINT
0804011	38 52 47	76 17 26	EE-1	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	BODKIN SHOAL, 1.5 MILES S-SE OF
0806018	38 42 06	76 09 51	EE-2	EASTERN SHORE	CHOPTANK	2060005	RED NUN BUOY # 4, S OF PECKS PO
0807018	38 44 34	76 15 42	EE-2	EASTERN SHORE	CHOPTANK	2060005	880 YDS W OF DEEP NECK POINT
0808044	38 45 12	76 18 28	EE-2	EASTERN SHORE	CHOPTANK	2060005	RED NUN BUOY # 10, W OF INDIAN
0901011	38 30 27	76 40 07	RET-1	PATUXENT	PATUXENT	2060006	325 YDS SW OF HALLOWING POINT
0903009	38 21 36	76 29 07	LE-1	PATUXENT	PATUXENT	2060006	900 YDS N/NE OF FLASHING RED #
1001014	38 36 04	75 59 01	ET-5	EASTERN SHORE	CHOPTANK	2060005	CAN BUOY # 35, S OF JAMAICA POI
1003016E	38 35 58	76 06 48	ET-5	EASTERN SHORE	CHOPTANK	2060005	100 YDS E OF RED BUOY # 20, S O
1004010	38 39 14	76 10 59	EE-2	EASTERN SHORE	CHOPTANK	2060005	CHOPTANK RIVER LIGHT
1006008	38 31 14	76 15 26	EE-2	EASTERN SHORE	CHOPTANK	2060005	1000 YDS W OF SUSQUEHANNA POINT
1104009	38 07 35	76 28 31	LE-2	POTOMAC	LOWER POTOMAC	2070011	1/2 DISTANCE BTWN FI 4 SEC # 3
1104029	38 10 10	76 26 41	LE-2	POTOMAC	LOWER POTOMAC	2070011	200 YDS NE OF CHANCELLOR PT, 15
1301024	38 16 36	76 49 27	LE-2	POTOMAC	LOWER POTOMAC	2070011	FLASHING GREEN 4 SEC # 5W
1302012	38 14 27	76 44 00	LE-2	POTOMAC	LOWER POTOMAC	2070011	800 YDS W OF FLASHING RED # 2 A
1302022	38 15 03	76 40 30	LE-2	POTOMAC	LOWER POTOMAC	2070011	300 YDS DUE N OF PROTESTANT POI
1305041	38 09 15	76 36 06	LE-2	POTOMAC	LOWER POTOMAC	2070011	FLASHING 6 SEC, 12 M OFF RAGGED
1306048	38 02 53	76 20 56	LE-2	POTOMAC	LOWER POTOMAC	2070011	1000 YDS SE OF CORNFIELD POINT
1402004	38 19 29	76 12 33	EE-3	CHESBAY	UPPER CHESAPEAKE BAY	2060001	NEXT TO BELL BUOY # 1A
1404007	38 18 08	76 01 45	EE-3	CHESBAY	UPPER CHESAPEAKE BAY	2060001	IN CHANNEL ON A LINE FR FISHING
1405202	38 15 49	75 55 34	ET-6	EASTERN SHORE	NANTICOKE	2060008	700 YDS FROM DAYMARKER # 6, 280
1406207	38 14 37	75 51 45	ET-7	EASTERN SHORE	BLACKWATER-WICOMICO	2060007	500 YDS NW OF CAN BUOY # 15
1801014	38 12 24	75 53 56	EE-3	CHESBAY	UPPER CHESAPEAKE BAY	2060001	400 YDS S OF RED BUOY # 4
1802005	38 10 00	75 58 24	EE-3	CHESBAY	UPPER CHESAPEAKE BAY	2060001	2300 YDS SW OF RED NUM # 2
1802205	37 57 01	75 58 24	EE-3	CHESBAY	UPPER CHESAPEAKE BAY	2060001	BUOY # A
1803007	38 07 22	75 51 02	ET-8	EASTERN SHORE	POCOMOKE	2060009	25 YDS S-SE OF MARKER # 5
1806010	37 56 52	75 47 39	EE-3	CHESBAY	UPPER CHESAPEAKE BAY	2060001	1/2 DISTANCE BETWEEN GAP POINT

MARYLAND SHELLFISH CONTAMINATION MONITORING STATIONS (SOFT CLAM)

STATION NAME (S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
0202014	39 06 04	76 15 38	CB-3	CHESBAY	UPPER CHESAPEAKE BAY	2060001	CAN BUOY # 3

MARYLAND SHELLFISH CONTAMINATION MONITORING STATIONS



VIRGINIA SHELLFISH SURVEILLANCE PROGRAM

PROGRAM DESCRIPTION: The Virginia Shellfish Surveillance Program consists of 41 stations which are sampled for heavy metals and/or pesticides. Sampling is conducted twice a year in the spring and the fall, although some stations are sampled once a year in either the spring or the fall. This program is in compliance with the National Shellfish Sanitation Program (NSSP) guidelines.

PROGRAM OBJECTIVE: To protect the health of consumers and to facilitate the interstate sale of products by the Virginia shellfish and crab meat industry.

DATE INITIATED: 1971

COORDINATING AGENCY:

Virginia Department of Health
Bureau of Shellfish Sanitation
109 Governor Street
Richmond, Virginia 23219

FUNDING AGENCY:

Virginia Department of Health
Division of Shellfish Sanitation

PARTICIPATING AGENCY: Virginia Department of Health, Bureau of Shellfish Sanitation (DSS)

INVESTIGATORS:

Director	Cloyde W. Wiley	BSS
Program Coordinator	Mary P. Wright	BSS

PARAMETERS:

Shellstock:
Arsenic
Cadmium
Chromium
Copper
Lead
Zinc
Organochlorines (inc. kepone, DDT, lindane)
Chlorinated Hydrocarbons
Organophosphates

STATIONS: There are 41 stations located in the Virginia portion of the Chesapeake Bay.

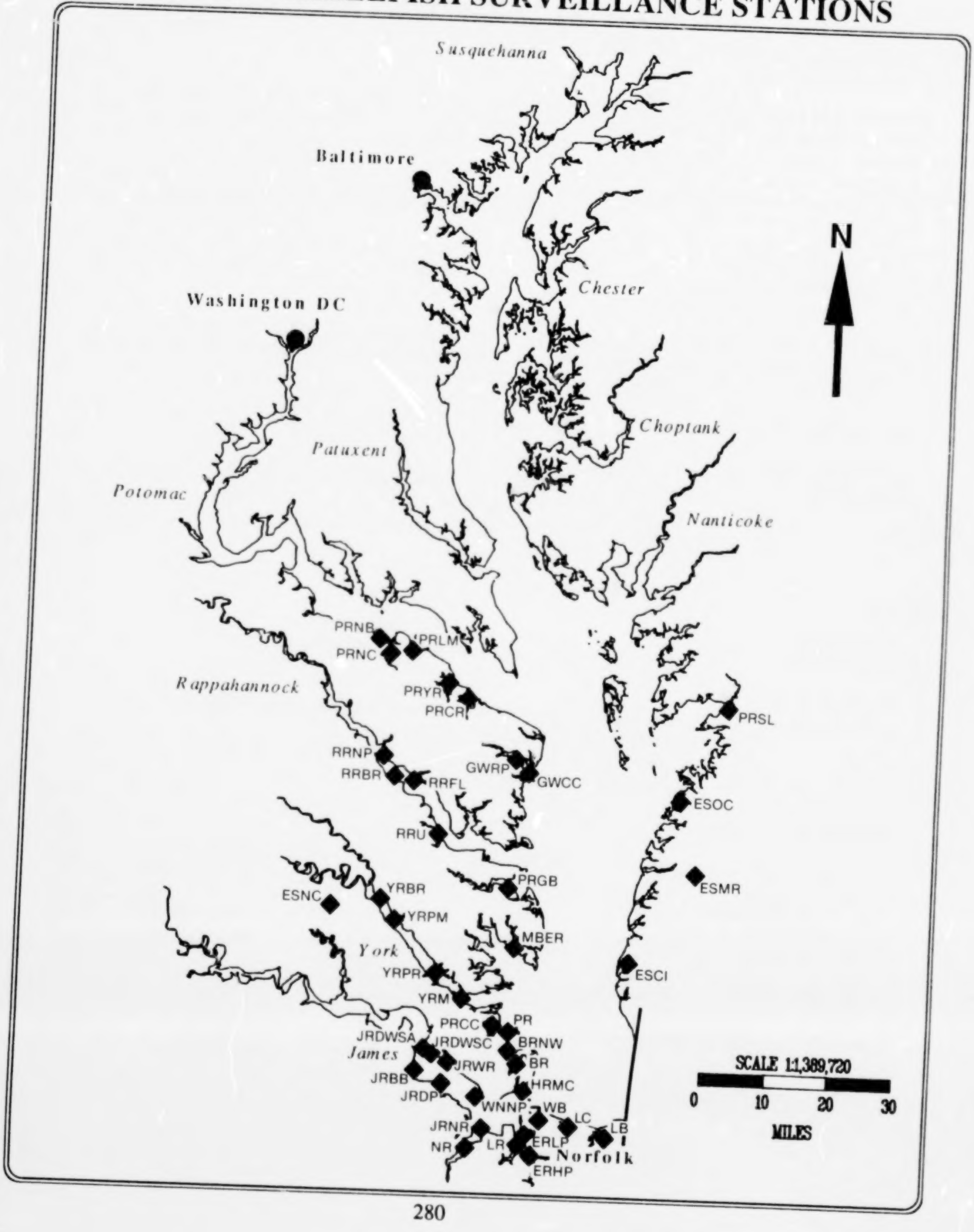
SAMPLE COLLECTION: Thirty-three stations are visited twice per year, with the other eight visited either in the spring (PRNB, PRCR, RRFL, YRPM), or in the fall (PRLM, PRYR, RRBR, YRBR). Approximately 10 oysters are collected per station, although triplicate samples are collected and analyzed at certain stations established by the FDA. Shellfish tissue (shellstock) is analyzed for heavy metals and, at selected stations, pesticide scans are performed for organochlorines, chlorinated hydrocarbons and organophosphates. Four stations are analyzed for pesticides only.

PROGRAM INTEGRATION: N/A

VIRGINIA SHELLFISH SURVEILLANCE STATIONS

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
BR	37 05 20	76 20 15	WE-4	YORK	GREAT WICOMICO-PIANKATANK	2080102	BACK RIVER
BRNW	37 06 25	76 21 45	WE-4	YORK	GREAT WICOMICO-PIANKATANK	2080102	BACK RIVER, NW BRANCH
ERHP	36 51 00	76 18 30	LE-5	JAMES	LOWER JAMES	2080206	LITTLE CREEK
ERLP	36 54 00	76 19 10	LE-5	JAMES	LOWER JAMES	2080206	ELIZABETH RIVER, HOSPITAL POINT
ESCI	37 18 50	75 59 25	CB-7	CHESBAY	LOWER CHESAPEAKE BAY	2080101	EASTERN SHORE, ONANCOCK CREEK (
ESMR	37 32 10	75 46 00	BFL	EASTERN SHORE	POCOMOKE	2060009	NASSAWADOX CREEK (PESTICIDE ONL
ESNC	37 29 40	76 55 05	BFL	YORK	PAMUNKEY	2080106	POCOMOKE RIVER, SHAD LANDING
ESOC	37 43 45	75 48 30	CB-7	CHESBAY	LOWER CHESAPEAKE BAY	2080101	EASTERN SHORE, MACHIPONGO RIVER
GWCC	37 49 05	76 17 15	CB-5	CHESBAY	UPPER CHESAPEAKE BAY	2060001	GREAT WICOMICO, COCKRELL CREEK
GWRP	37 50 40	76 19 25	CB-5	CHESBAY	UPPER CHESAPEAKE BAY	2060001	GREAT WICOMICO, OFF ROGUE PT (P
HRMC	37 00 30	76 19 15	LE-5	JAMES	LOWER JAMES	2080206	WILLOUGHBY BAY
JRBB	37 04 00	76 39 35	LE-5	JAMES	LOWER JAMES	2080206	JAMES RIVER, WARWICK RIVER
JRDP	37 01 45	76 34 45	LE-5	JAMES	LOWER JAMES	2080206	JAMES RIVER, NANSEMOND RIDGE
JRDWSA	37 07 10	76 37 20	LE-5	JAMES	LOWER JAMES	2080206	JAMES RIVER, DEEP WATER SHOALS
JRDWSC	37 06 35	76 36 20	LE-5	JAMES	LOWER JAMES	2080206	JAMES RIVER, BURWELL BAY
JRNR	36 54 35	76 27 30	LE-5	JAMES	LOWER JAMES	2080206	HAMPTON ROADS, WEST OF NEWPORT
JRWR	37 04 30	76 32 40	LE-5	JAMES	LOWER JAMES	2080206	JAMES RIVER, DAYS POINT
LB	36 53 25	76 04 15	CB-8	CHESBAY	LOWER CHESAPEAKE BAY	2080101	RUDEE INLET
LC	36 55 30	76 11 35	CB-8	CHESBAY	LOWER CHESAPEAKE BAY	2080101	LYNNHAVEN BAY
LR	36 54 15	76 18 00	LE-5	JAMES	LOWER JAMES	2080206	ELIZABETH RIVER, LAMBERT POINT
MBER	37 21 45	76 20 20	WE-4	YORK	GREAT WICOMICO-PIANKATANK	2080102	MOBJACK BAY, EAST RIVER
NR	36 51 45	76 30 30	LE-5	JAMES	LOWER JAMES	2080206	HAMPTON ROADS, BETWEEN HAMPTON
PR	37 09 00	76 22 15	BFL	JAMES	LYNNHAVEN-POQUOSON	2080108	POQUOSON RIVER
PRCC	37 10 40	76 24 30	WE-4	YORK	GREAT WICOMICO-PIANKATANK	2080102	POQUOSON RIVER, CHISMAN CREEK
PRCR	37 59 35	76 28 30	LE-2	POTOMAC	LOWER POTOMAC	2070011	POTOMAC RIVER, COAN RIVER
PRGB	37 30 55	76 21 25	LE-3	RAPPAHANNOCK	LOWER RAPPAHANNOCK	2080104	PIANKATANK RIVER, GODFREY BAY
PRIM	38 07 00	76 38 25	LE-2	POTOMAC	LOWER POTOMAC	2070011	POTOMAC RIVER, LOWER MACHODOC
PRNB	38 08 45	76 44 35	LE-2	POTOMAC	LOWER POTOMAC	2070011	POTOMAC RIVER, NOMINI BAY
PRNC	38 06 45	76 42 55	LE-2	POTOMAC	LOWER POTOMAC	2070011	POTOMAC RIVER, MONINI CREEK
PRSL	37 56 30	75 40 15	ET-10	EASTERN SHORE	POCOMOKE	2060009	EASTERN SHORE, CHERRYSTONE INLE
PRYR	38 01 40	76 32 10	LE-2	POTOMAC	LOWER POTOMAC	2070011	POTOMAC RIVER, YEOCOMICO RIVER
RRBR	37 47 55	76 42 30	RET-3	RAPPAHANNOCK	LOWER RAPPAHANNOCK	2080104	RAPPAHANNOCK RIVER, BOWLERS ROC
RRFL	37 47 45	76 39 00	RET-3	RAPPAHANNOCK	LOWER RAPPAHANNOCK	2080104	RAPPAHANNOCK R BETWEEN FARNHAM
RRNP	37 51 05	76 44 25	RET-3	RAPPAHANNOCK	LOWER RAPPAHANNOCK	2080104	RAPPAHANNOCK RIVER, NEALS POINT
RRU	37 39 30	76 34 05	LE-3	RAPPAHANNOCK	LOWER RAPPAHANNOCK	2080104	RAPPAHANNOCK RIVER OFF URBANNA
WB	36 57 45	76 16 40	LE-5	JAMES	LOWER JAMES	2080206	LAFAYETTE RIVER
WNNP	37 00 20	76 27 55	LE-5	JAMES	LOWER JAMES	2080206	NANSEMOND RIVER (PESTICIDE ONLY
YRBR	37 29 30	76 44 50	RET-4	YORK	YORK	2080107	YORK RIVER, BELL ROCK
YRM	37 14 30	76 30 25	LE-4	YORK	YORK	2080107	YORK RIVER, MOUTH
YRPM	37 26 30	76 42 20	RET-4	YORK	YORK	2080107	YORK RIVER, POROPOTANK MOUTH
YRPR	37 18 40	76 35 05	LE-4	YORK	YORK	2080107	YORK RIVER, PAGES ROCK

VIRGINIA SHELLFISH SURVEILLANCE STATIONS



NOAA NATIONAL STATUS AND TRENDS PROGRAM - MUSSEL WATCH PROJECT

PROGRAM DESCRIPTION: The National Oceanic and Atmospheric Administration (NOAA) National Status and Trends (NS&T) Program makes a wide range of environmental measurements to assess impacts of human activity on coastal and estuarine regions. The Mussel Watch project is a component of the NS&T program in which chemical contaminants in sediments and bivalve tissues are assessed at 150 sites nationwide. This program is similar to that originally sponsored between 1976 and 1978 by the U.S. Environmental Protection Agency. Six Mussel Watch stations are located in the Chesapeake Bay. Three of these were also sampled between 1976 and 1978 through the EPA program. The American oyster is the target species in the Bay. Selected Mussel Watch samples are stored at the National Institute of Standards and Technology through the NS&T Program's Specimen Banking project for potential future research.

PROGRAM OBJECTIVE: To assess chemical contamination of in sediments and bivalve tissues as a means of documenting the status and long-term changes of environmental quality in the Bay and in coastal and estuarine environs nationwide.

DATE INITIATED: 1986

COORDINATING AGENCY:

National Oceanic and Atmospheric Administration
Ocean Assessments Division
Office of Oceanography and Marine Assessment
Rockwell Building
11400 Rockville Pike
Rockville, MD 20852

FUNDING AGENCY: National Oceanic and Atmospheric Administration

PARTICIPATING AGENCIES:

National Oceanic and Atmospheric Administration (NOAA)
Battelle Ocean Sciences (BATELLE)
National Institute of Standards and Technology (NIST)
Texas A&M University (TAMU)

INVESTIGATORS:

Principal Investigator	Andrew Robertson	NOAA/OMA
Project Manager	Thomas O'Connor	NOAA/OMA
Asst. Contract Officer/ Mussel Watch	Gunnar Lauenstein	NOAA/OMA
Quality Assurance	Carol-Ann Manen	NOAA/OMA

PARAMETERS:

Bottom Sediment and Bivalve Tissue:
PAHs
PCBs
Additional Chlorinated Hydrocarbons
Aluminum
Silicon
Chromium
Manganese
Iron
Nickel

Copper
Zinc
Arsenic
Selenium
Tin
Antimony
Silver
Cadmium
Mercury
Thallium
Lead

Sediment Only:
Grain Size
Total Organic Carbon/Carbonate
Chemical Sewage Tracer

Bivalve Tissue Only:
Size
Weight
Gonadal/Somatic Index
Percent Lipids

STATIONS: The six Mussel Watch stations are located along the mainstem of the Chesapeake Bay from the C & D Canal to Hampton Roads.

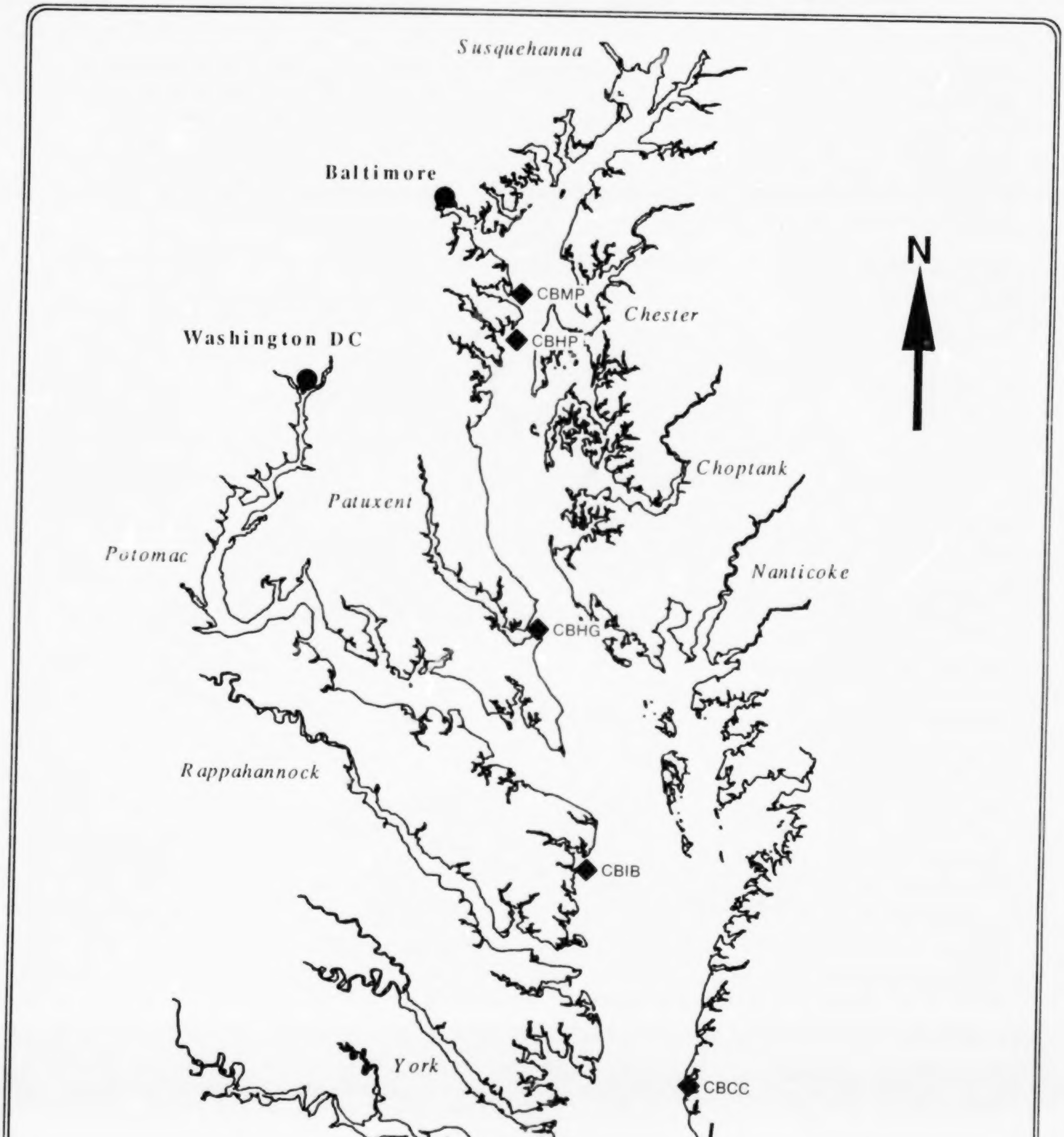
SAMPLE COLLECTION: Samples for the Mussel Watch Program are collected annually at all the Chesapeake Bay sites. Each site is comprised of three bivalve mollusc and three sediment stations. Sediment collections are made as close to the bivalve collections as possible. Sediment samples are collected with a Kynar coated modified Van Veen-type grab for chemistry and grain size analyses. From these grabs, composite samples are made for each station and the sediment is analyzed. Bivalve samples are obtained by dredge, sampling fork, tongs or hand collection. Three discrete bivalve samples are taken for chemical analysis, gonadal indexing and histopathological tests. In addition, for each site, composite samples consisting of 80 - 100 individual oysters are collected from three different stations. The composite is divided into three samples and then shucked, with the gonadal and histopathological samples stored in Dietrich's preservative and the chemical samples frozen on dry ice. Two additional sediment samples and 20 oysters or 36 mussels are collected at selected sites and archived through the Specimen Bank Project at NIST.

PROGRAM INTEGRATION: The Chesapeake Bay is sampled as part of a nationwide sampling program which includes 150 Mussel Watch sites.

NOAA STATUS AND TRENDS MUSSEL WATCH STATIONS

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
CBCC	37 17 37	76 00 35	BFL	EASTERN SHORE	POCOMOKE	2060009	CAPE CHARLES, VA
CBHG	38 18 43	76 23 53	CB-5	CHESBAY	UPPER CHESAPEAKE BAY	2060001	HOG POINT, MD
CBHP	38 58 23	76 25 00	CB-4	CHESBAY	UPPER CHESAPEAKE BAY	2060001	HACKETT POINT BAR, MD
CBIB	37 47 37	76 17 04	CB-5	CHESBAY	UPPER CHESAPEAKE BAY	2060001	INGRAHAM BAY, VA
CBMP	39 04 25	76 24 43	CB-3	CHESBAY	UPPER CHESAPEAKE BAY	2060001	MOUNTAIN POINT BAR, MD
CBST	37 06 06	76 19 24	WE-4	YORK	GREAT WICOMICO-PIANKATANK	2080102	STONEY POINT, VA

NOAA STATUS AND TRENDS MUSSEL WATCH STATIONS



PENNSYLVANIA FISH TISSUE SAMPLING PROGRAM

PROGRAM DESCRIPTION: The Pennsylvania Fish Tissue Sampling Program is designed to supplement data obtained through the water quality network on the condition of Pennsylvania's waterways. Through it, approximately 30 fish tissue samples are collected at fixed water quality stations each year throughout the state. Stations are rotated each year with the goal of covering the state over a period of years (approximately five) and then restarting the rotation. Routine sampling of approximately 20 stations where problems have been identified will continue. Sampling occurs annually between August 1 and September 31. The rotational sampling schedule began in 1988.

PROGRAM OBJECTIVE: To detect organic compounds and metals in fish tissues as an indicator of the water environment.

DATE INITIATED: 1979

COORDINATING AGENCY:

Pennsylvania Department of Environmental Resources
Bureau of Water Quality Management
P.O. Box 2063
Harrisburg, Pennsylvania 17120

FUNDING AGENCY: Pennsylvania Department of Environmental Resources

PARTICIPATING AGENCIES: Pennsylvania Department of Environmental Resources (PADER)

INVESTIGATORS:

Principal Investigator	Robert F. Frey	PADER

PARAMETERS:

Aldrin
Chlordane
Dieldrin
Total DDT, including: o,p DDE; p,p' DDE; o,p DDD; p,p' DDD; o,p DDT; and p,p' DDT
Endrin
Hexachlorobenzene
Hexachlorocylcohexane, including gamma and alpha BHC isomers
Methoxychlor
Pentachlorophenol
PCBs
Arsenic
Cadmium
Chromium
Copper
Lead
Mercury

STATIONS: Approximately 30 stations from the Pennsylvania Water Quality Network are sampled each year on a rotating basis. All stations are sampled over a period of time after which the rotation will continue. In addition, annual sampling is done at approximately 20 stations with identified or suspected problems.

SAMPLE COLLECTION: All sampling occurs annually between August 1 and September 31. Fish are collected through a variety of means including electrofishing, seine, gill net, rotenone or angling.

PROGRAM INTEGRATION: This program is operated in conjunction with, and at the same stations as, Pennsylvania's Water Quality Network.

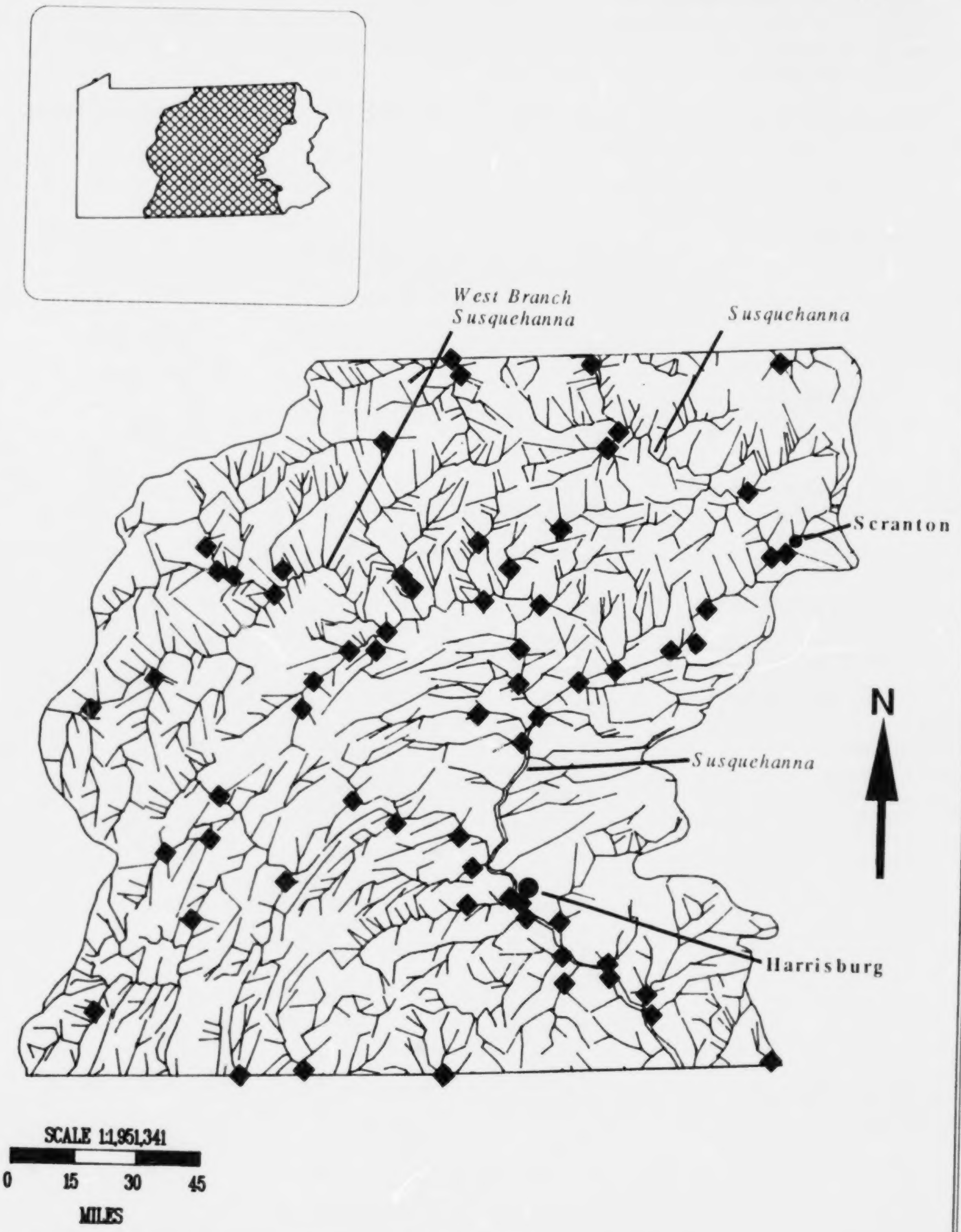
PENNSYLVANIA FISH TISSUE SAMPLING STATIONS

STATION NAME (S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
N0201	40 01 44	76 31 00	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	PA RTE 462 COLUMBIA WRIGHTSVILL
N0202	40 15 27	76 53 12	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA-SWATARA	2050305	SUSQU. R. AT WALNUT ST. BR. IN
N0203	40 51 15	76 48 21	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA-PENNS	2050301	VETERANS MEMORIAL BR. BTWN SUNB
N0204	39 53 34	76 21 29	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	PEQUEA CREEK 5,000' UPSTRM FR M
N0206	40 03 19	76 31 33	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	CHICKIES CREEK AT RT 441 BRIDGE
N0207	40 00 39	76 42 38	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	CODORUS CREEK AT LR66021 BRIDGE
N0210	40 04 52	76 43 04	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	W. CONEWAGO CR AT ROUTE 181 BRI
N0211	40 11 58	76 43 00	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA-SWATARA	2050305	SWATARA CR. AT RT 441 BRIDGE IN
N0212	40 13 27	76 51 38	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA-SWATARA	2050305	RT 111 BRIDGE ST. BR. AT NEW CU
N0213	40 15 36	77 06 11	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA-SWATARA	2050305	CONODOGUINET CR NR COUNTRY MANO
N0214	40 28 42	77 07 46	AFL	SUSQUEHANNA	LOWER JUNIATA	2050304	JUNIATA R. AT ROUTE 34 BRIDGE I
N0217	40 36 33	78 08 11	AFL	SUSQUEHANNA	UPPER JUNIATA	2050302	L JUNIATA R, AT PA 45 BRIDGE AT
N0220	40 35 46	77 34 24	AFL	SUSQUEHANNA	LOWER JUNIATA	2050304	KISHACOQUILLAS CR, MAIN STREET
N0223	40 12 54	78 15 54	AFL	SUSQUEHANNA	RAYSTOWN	2050303	RAYSTOWN BR JUNIATA R. PR913 BR
N0224	40 28 36	78 10 39	AFL	SUSQUEHANNA	UPPER JUNIATA	2050302	FRANKSTOWN BR JUNIATA R, R&R BR
N0228	40 46 29	76 52 11	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA-PENNS	2050301	MIDDLE CR, OLD US 11 & 15 BR. I
N0229	40 51 59	77 02 56	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA-PENNS	2050301	PENNS CREEK, PA RT 104 BR AT VI
N0231	39 57 41	76 21 57	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	CONESTOGA CREEK AT T-561 BRIDGE
N0240	40 16 16	76 54 53	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA-SWATARA	2050305	CONODOGUINET CREEK MOUTH, NEAR
N0243	40 22 50	77 04 57	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA-SWATARA	2050305	SHERMANS CR. NEAR DUNCANNON AT
N0245	40 31 45	77 23 32	AFL	SUSQUEHANNA	LOWER JUNIATA	2050304	TUSCARORA CR, PA RTE 75 BR.
N0249	40 20 05	77 51 37	AFL	SUSQUEHANNA	LOWER JUNIATA	2050304	AUGHWICH CR, TR 403 AT AUGHWICK
N0252	40 25 51	78 21 45	AFL	SUSQUEHANNA	UPPER JUNIATA	2050302	BEAVERDAM BR JUNIATA R. 2000 FT
N0256	39 43 47	75 46 12	BFL	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	BIG ELK CR, STRICKERSVILLE RD B
N0301	40 57 29	76 37 10	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-LACKAWANNA	2050107	N.BR.SUSQUEHANNA R, PR 54 BRIDG
N0302	41 11 19	76 05 13	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-LACKAWANNA	2050107	SUSQUEHANNA R, RT11 BR. NR RETR
N0303	41 21 00	75 48 05	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-LACKAWANNA	2050107	SUSQUEHANNA R, COXTON RR BR IN
N0305	41 45 55	76 26 28	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-TUNKHANNOCK	2050106	SUSQUEHANNA R, BRIDGE ON RT 6 A
N0306	41 57 48	75 44 33	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA	2050101	SUSQUEHANNA R, ROUTE 11 BRIDGE
N0308	40 59 42	76 28 25	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-LACKAWANNA	2050107	FISHING CR, RT 42 BRIDGE IN HEM
N0309	41 03 18	76 13 54	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-LACKAWANNA	2050107	NESCOPECK CREEK, BRIDGE ON LR 4
N0310	41 04 17	76 08 02	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-LACKAWANNA	2050107	WAPWALLOPEN CR, RT239 BR IN CON
N0313	41 21 33	75 44 41	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-LACKAWANNA	2050107	LACKAWANNA R, BRIDGE ST. BR IN
N0317	41 33 29	75 53 42	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-TUNKHANNOCK	2050106	TUNKHANNOCK CREEK, BRIDGE ON RT
N0318	41 42 29	76 29 06	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-TUNKHANNOCK	2050106	TOWANDA CREEK AT RT 220 BRIDGE
N0320	41 59 46	77 08 32	AFL	SUSQUEHANNA	TIOGA	2050104	COWANESQUE RIVER 1 MI UPSTR FR
N0324	41 57 27	77 06 58	AFL	SUSQUEHANNA	TIOGA	2050104	TIOGA R, BRIDGE ON TR773, LAWRE
N0332	41 58 41	76 32 58	AFL	SUSQUEHANNA	CHEMUNG	2050105	CHEMUNG RIVER LR08066 BR.
N0333	41 47 24	76 27 43	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-TUNKHANNOCK	2050106	LR08191 BR
N0334	41 41 49	76 13 52	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-TUNKHANNOCK	2050106	PA RT 706 BR. AT MERRYALL
N0335	41 49 50	76 21 00	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-TUNKHANNOCK	2050106	PA RT 467 BR.
N0337	41 24 57	76 05 27	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-TUNKHANNOCK	2050106	T310 BR NEAR STULL
N0401	40 58 02	76 52 45	AFL	SUSQUEHANNA	LOWER WEST BRANCH SUSQUEHANNA	2050206	W. BR. SUSQUEHANNA RIVER AT PA
N0402	41 13 44	77 01 09	AFL	SUSQUEHANNA	LOWER WEST BRANCH SUSQUEHANNA	2050206	W.BR.SUSQ. R, MAYNARD ST BR IN
N0406	40 53 49	78 40 38	AFL	SUSQUEHANNA	UPPER WEST BRANCH SUSQUEHANNA	2050201	W.BR.SUSQUEHANNA R, T-418 BRG I
N0407	41 13 02	76 47 15	AFL	SUSQUEHANNA	LOWER WEST BRANCH SUSQUEHANNA	2050206	MUNCY CREEK, OLD RT 147 BR
N0408	41 19 31	76 54 43	AFL	SUSQUEHANNA	LOWER WEST BRANCH SUSQUEHANNA	2050206	LOYALSOCK CR, PR 973 BRG AT LOY
N0409	41 25 06	77 01 59	AFL	SUSQUEHANNA	LOWER WEST BRANCH SUSQUEHANNA	2050206	LYCOMING CR, TR 840 BRG IN LEWI
N0410	41 16 59	77 19 21	AFL	SUSQUEHANNA	PINE	2050205	PINE CR, RxR BR AT RAMSEY
N0412	41 07 35	77 26 00	AFL	SUSQUEHANNA	MIDDLE WEST BRANCH SUSQUEHANNA	2050203	BALD EAGLE CR, LR18013 BR. AT C
N0413	40 58 31	77 44 35	AFL	SUSQUEHANNA	BALD EAGLE	2050204	BALD EAGLE CR, LR 14010 BRIDGE
N0415	40 53 23	77 47 40	AFL	SUSQUEHANNA	BALD EAGLE	2050204	SPRING CR, LR14040 HARTELL'S BR
N0418	41 15 41	77 54 10	AFL	SUSQUEHANNA	MIDDLE WEST BRANCH SUSQUEHANNA	2050203	SINNEMAHONING CR, LR18001 BR AT
N0419	41 19 12	78 04 51	AFL	SUSQUEHANNA	SINNEMAHONING	2050202	FIRST FORK SINNEMAHONING CREEK,
N0420	41 24 48	78 11 50	AFL	SUSQUEHANNA	SINNEMAHONING	2050202	DRFWD BR SINNEMAHONG LR12004 BR
N0422	40 59 09	78 24 22	AFL	SUSQUEHANNA	UPPER WEST BRANCH SUSQUEHANNA	2050201	CLEARFIELD CR, PA RT 153
N0423	41 04 29	77 35 32	AFL	SUSQUEHANNA	BALD EAGLE	2050204	US 220 BRIDGE AT BEECH CREEK
N0427	41 04 29	76 52 21	AFL	SUSQUEHANNA	LOWER WEST BRANCH SUSQUEHANNA	2050206	WHITE DEER CR, US 15 BRIDGE IN
N0428	41 27 22	76 41 24	AFL	SUSQUEHANNA	LOWER WEST BRANCH SUSQUEHANNA	2050206	LOYALSOCK CREEK PA RT 87 BR NR
N0429	41 18 34	77 21 45	AFL	SUSQUEHANNA	PINE	2050205	LITTLE PINE CR, PA RT 44 BRG AT
N0430	41 44 15	77 25 50	AFL	SUSQUEHANNA	PINE	2050205	PINE CREEK DNSTRM FR CONFL W/ M
N0433	41 04 31	77 28 40	AFL	SUSQUEHANNA	BALD EAGLE	2050204	FISHING CR, LR18007 BR NEAR CED
N0434	41 19 10	77 52 25	AFL	SUSQUEHANNA	MIDDLE WEST BRANCH SUSQUEHANNA	2050203	KETTLE CR, 3.2 MI UPSTRM FR PA
N0439	41 20 02	78 08 10	AFL	SUSQUEHANNA	SINNEMAHONING	2050202	BENNETT BRANCH, T343 BRIDGF S O
N0501	39 30 24	77 47 27	AFL	POTOMAC	CONOCOCHEAGUE-OPEQUON	2070004	CONOCOCHEAGUE CR 0.5 MI DNSTRM
N0503	39 44 00	77 13 45	AFL	POTOMAC	MONOCACY	2070009	ROCK CREEK SR 3002 BRIDGE

PENNSYLVANIA FISH TISSUE SAMPLING STATIONS (Cont'd)

STATION NAME (S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
N0505	39 43 23	78 03 37	AFL	POTOMAC	CONOCOCHEAGUE-OPEQUON	2070004	LICKING CREEK SR0456 BR AT PA/M
N0506	39 55 37	78 39 36	AFL	SUSQUEHANNA	RAYSTOWN	2050303	LITTLE WILLS CREEK, SR0096 BR A

PENNSYLVANIA FISH TISSUE SAMPLING STATIONS



MARYLAND FINFISH TISSUE MONITORING PROGRAM

PROGRAM DESCRIPTION: As part of the Federally mandated Basic Water Monitoring Program, the State of Maryland has monitored levels of organic compounds and heavy metals in the aquatic environment. This is accomplished through analysis of whole fish samples collected from waters throughout the state.

PROGRAM OBJECTIVE: To characterize short and long-term trends in contaminant levels in Maryland's aquatic environment.

DATE INITATED: 1977

COORDINATING AGENCY:

Maryland Department of the Environment
Water Management Administration
Certification and Standards Division
2500 Broening Highway
Baltimore, Maryland 21224

FUNDING AGENCIES:

Maryland Department of the Environment
U.S. EPA Region III

PARTICIPATING AGENCIES:

Maryland Department of the Environment (MDE)
Maryland Department of Health and
Mental Hygiene Laboratory (MD DHMH)

INVESTIGATORS:

Program Coordinator	Mary Jo Garreis	MDE

PARAMETERS:

Arsenic
Cadmium
Chromium
Copper
Lead
Mercury
Zinc
PCB-1254
PCB-1260
PCB-1242
Lindane
BHC alpha
DDE
DDD
DDT
Dieldrin
Endrin
Dacthal
Mirex
Toxaphene
Methoxychlor
Endosulphan
Hexachlorobenzene
Heptachlor epoxide
Heptachlor
Chlordane

STATIONS: Finfish are collected at 33 EPA national water quality monitoring network, or CORE stations located throughout Maryland.

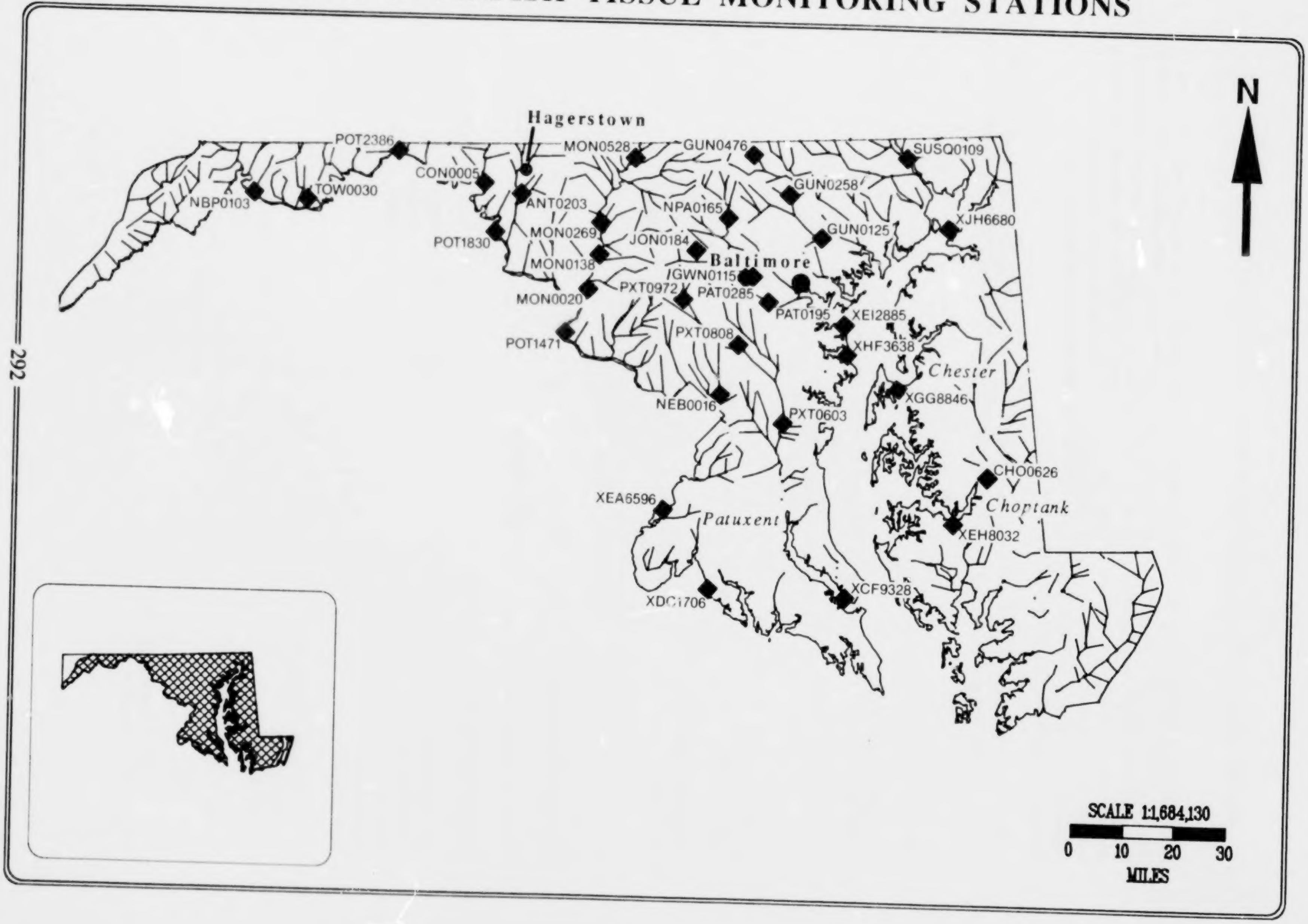
SAMPLE COLLECTION: Annual collections of finfish are made using techniques determined by the characteristics of the station. At nontidal stations, finfish are collected by electroshocking a section of the river. At tidal stations, otter trawls of 10 minute duration are used for sample collection. Attempts are made to collect two species at each station consistently over time, preferably representing both bottom feeding and predator species. At all nontidal stations, a census is taken during each sampling event. Total weight, range of lengths and total numbers of individuals of each species are recorded for all stations.

PROGRAM INTEGRATION: These stations are a subset of Maryland's CORE monitoring network which monitors both tidal and nontidal tributaries, and the mainstem of the Chesapeake Bay.

MARYLAND FINFISH TISSUE MONITORING STATIONS

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
ANT0203	39 35 40	77 42 40	AFL	POTOMAC	CONOCOCHEAGUE-OPEQUON	2070004	ANTIETAM CREEK AT BRG. POFFENBU
CHO0626	38 59 49	75 47 12	BFL	EASTERN SHORE	CHOPTANK	2060005	CHOPTANK R AT READ BR. NR SEWEL
CON0005	39 36 11	77 49 19	AFL	POTOMAC	CONOCOCHEAGUE-OPEQUON	2070004	CONOCOCHEAGUE CREEK MD. 68 BRID
GUN0125	39 25 32	76 31 45	AFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	FALLS BRG./CROMWELL BR. RD.
GUN0258	39 32 59	76 38 09	AFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	GUNPOW. F. 4 END GLEN. RD AT OL
GUN0476	39 41 21	76 46 51	AFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	GUNPOWDER FALLS BRIDGE AT GUNPO
GWN0115	39 20 33	76 43 36	AFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	GWYNNS F. BR ESS. RD VILLA NOVA
JON0184	39 23 36	76 39 44	AFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	JONES FALLS NEAR BR. FALLS RD.
MON0020	39 16 17	77 26 30	AFL	POTOMAC	MONOCACY	2070009	MONACACY RIVER BRIDGE ON MD R
MON0138	39 23 15	77 22 53	AFL	POTOMAC	MONOCACY	2070009	BRIDGE ON MD RT 355, BELOW FRED
MON0269	39 28 49	77 23 23	AFL	POTOMAC	MONOCACY	2070009	MONCACY RIVER BRIDGE ON BIGGS F
MON0528	39 40 47	77 14 10	AFL	POTOMAC	MONOCACY	2070009	MONOCACY R BRIDPT BRG MD RT 140
NBP0103	39 34 57	78 43 54	AFL	POTOMAC	NORTH BRANCH POTOMAC	2070002	N BR. POT. W INTER. MOOR. RD AN
NEB0016	38 57 34	76 55 35	BFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	NORTHEAST BRANCH ANACOSTIA R. A
NPA0165	39 28 57	76 52 56	AFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	N BRANCH PATAPSCO BR. AT MD RT9
PAT0195	39 14 19	76 44 47	AFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	PATAPSCO AT ORANGE GROVE
PAT0285	39 18 44	76 47 33	AFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	PATAPSCO AT HOLLOFIELD (USGS GR
POT1471	39 09 16	77 31 18	AFL	POTOMAC	MIDDLE POTOMAC CATOCTIN	2070008	POTOMAC RIVER TERMINUS OF WHITE
POT1830	39 26 06	77 48 11	AFL	POTOMAC	CONOCOCHEAGUE-OPEQUON	2070004	POT. R AT GAG. ST. BELOW RT.34
POT2386	39 41 50	78 10 36	AFL	POTOMAC	CONOCOCHEAGUE-OPEQUON	2070004	POT. R GAG. ST. 0.5 MI BELOW RT
PXT0603	38 57 21	76 41 36	BFL	PATUXENT	PATUXENT	2060006	PATUXENT RIVER MD ROUTE 50 BRID
PXT0808	39 06 39	76 51 28	BFL	PATUXENT	PATUXENT	2060006	PATUXENT R. BELOW 9TH STREET CR
PXT0972	39 14 21	77 03 23	AFL	PATUXENT	PATUXENT	2060006	PATUX. R AT BRG. MD RT.97 UNITY
SUS0109	39 39 21	76 10 28	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	SUSQUEHANNA RIVER AT CONOWINGO
TOW0013	39 31 44	78 33 13	AFL	POTOMAC	CACAPON-TOWN	2070003	TOWNS CREEK WHERE X'D NEAR CARD
XCF9328	38 19 17	76 27 15	LE-1	PATUXENT	PATUXENT	2060006	PATUXENT R. AT MOUTH OF MILL CR
XDC1706	38 21 45	76 59 27	RET-2	POTOMAC	LOWER POTOMAC	2070011	POTOMAC R MIDCH. AT MORGANTOWN
XEA6596	38 36 29	77 10 27	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	POTOMAC RIVER MIDCH. OFF IND AT
XEH8032	38 34 48	76 03 36	ET-5	EASTERN SHORE	CHOPTANK	2060005	LATRAPPE CREEK 1200 YDS NG OF D
XGG8846	38 58 46	76 15 58	BFL	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	PINEY CR AT MOUTH N OF RT 50 DR
XHF3638	39 03 38	76 26 12	WT-6	WEST CHESAPEAKE	SEVERN	2060004	MAGOTHY RIVER 400 YARDS WEST OF
XIE2885	39 12 49	76 31 31	WT-5	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	AT BUOY "5M" HAWKINS PT 600 YDS
XJH6680	39 26 35	76 01 58	CB-2	CHESBAY	UPPER CHESAPEAKE BAY	2060001	NE OF BUOY RB"A" BETWEEN TURKEY

MARYLAND FINFISH TISSUE MONITORING STATIONS



HART-MILLER ISLAND BENTHIC MONITORING PROGRAM

PROGRAM DESCRIPTION: The Hart-Miller Island Benthic Monitoring Program is one component of a program designed to continually assess the environmental effects of constructing and utilizing a diked containment facility at Hart-Miller Island which receives bottom sediments dredged from Baltimore Harbor and its approaches. Through it, benthic communities are assessed for species composition, distribution and abundance, and chemical analysis is performed on biotic samples in the spring and fall of each year. Finfish monitoring is performed on the same day but is limited to metals and organic analysis.

PROGRAM OBJECTIVES: To examine benthic community structure, as well as metal and organic contaminants in biological organisms surrounding the Hart-Miller Island Dredged Material Containment facility.

DATE INITIATED: 1981

COORDINATING AGENCY:

Maryland Department of Natural Resources
Tidewater Administration
Tawes State Office Building
Annapolis, Maryland 21401

FUNDING AGENCY: Maryland Port Administration

PARTICIPATING AGENCY:

Chesapeake Biological Laboratories (CBL)
Maryland Department of Natural Resources (MDDNR)
Maryland Environmental Service (MES)
Maryland Geological Survey (MGS)

INVESTIGATORS:

Program Coordinator	Pete Dunbar	MDDNR

PARAMETERS:

Benthic Fauna:
Temperature
Salinity
Abundance
Distribution

Biota (Organic Analyses):
Acenaphthene
Acenaphthylene
Aldrin
Alpha BHC
Anthracene
Beta BHC
Gamma BHC (Lindane)
Benzo (a) anthracene
Benzo (b) flouranthene
Benzo (k) flouranthene
Benzo (g,h,i) perylene
Chlordane
Chrysene
4,4'-DDD
4,4'-DDE
4,4'-DDT
Dibenzo (a,h) anthracene
Dieldrin
Endrin
Flouranthene
Flourene
Heptachlor
Heptachlor Epoxide

Ideno (1,2,3-cd) pyrene
Naphthalene
PCBs, Total
Phenanthrene
Bis (2-Ethylhexyl) Phthalate
Butyl Benzyl Phthalate
Di-n-butyl Phthalate
Diethyl Phthalate
Dimenthyl Phthalate
Di-n-octyl Phthalate
Pyrene
Toxaphene

Gas Chromatography/Mass Spectrometry analysis for:

Herbicides
Pesticides
Polychlorinated Biphenyls (PCBs)
Polynuclear Aromatic Compounds (PAHs)

Biota (Metals):

Arsenic
Cadmium
Chromium
Copper
Lead
Mercury
Nickel
Zinc

STATIONS: There are approximately 18 benthic stations in the vicinity of the Hart-Miller Containment facility. Station locations do change slightly from year to year. Those listed were sampled in 1986-1987.

SAMPLE COLLECTION: Field sampling for benthic and finfish is conducted three times a year in the spring and the fall. At each benthic station, three replicate benthic samples are obtained with a Van Veen grab from 6-15 cm in depth depending on the texture of the bottom. These are then washed separately on a 1mm screen and preserved in 10% formalin solution. Epifauna samples are obtained at various depths from the concrete pilings which support the fishing and boat piers and are spaced at intervals around the perimeter of the island. These samples are treated as the infaunal samples.

Finfish are sampled using bottom net trawls conducted to the north, south, east, and west of the dike. Crabs occasionally caught in trawls are also analyzed.

PROGRAM INTEGRATION: The Hart-Miller Island Benthic Monitoring Program is coordinated by MDDNR in conjunction with the Hart-Miller Sediment Program. In addition, water quality within the containment facility is monitored by the Maryland Environmental Service.

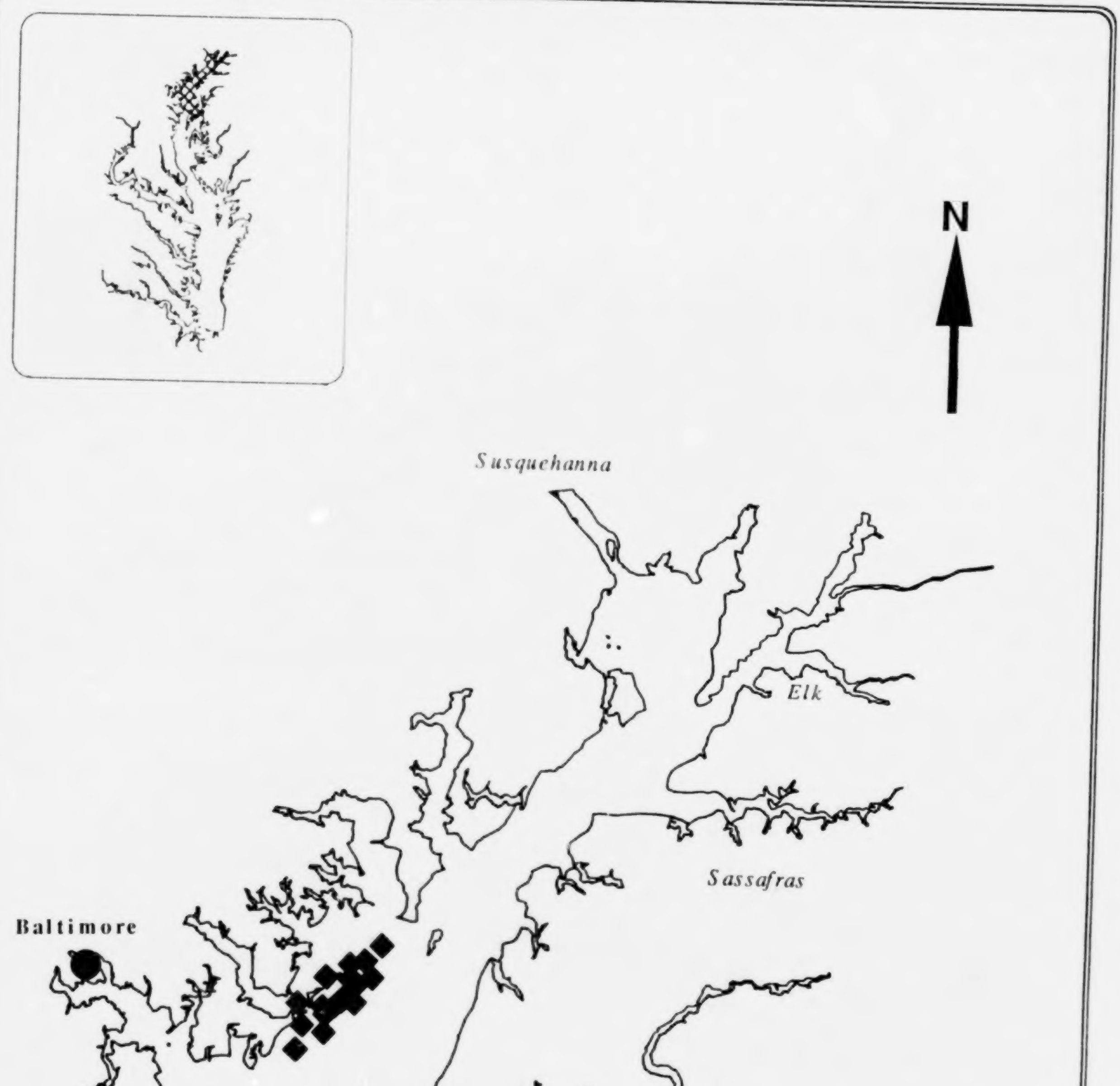
HART-MILLER ISLAND BENTHIC ORGANISM MONITORING STATIONS

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
XIF3325	39 13 17	76 22 30	CB-3	CHESBAY	UPPER CHESAPEAKE BAY	2060001	BENTHIC REFERENCE
XIF3638	39 13 37	76 23 47	CB-3	CHESBAY	UPPER CHESAPEAKE BAY	2060001	BENTHIC EPIFAUNAL
XIF4124	39 14 08	76 22 24	CB-3	CHESBAY	UPPER CHESAPEAKE BAY	2060001	BENTHIC NEAR FIELD
XIF4327	39 14 17	76 22 41	CB-3	CHESBAY	UPPER CHESAPEAKE BAY	2060001	BENTHIC NEAR FIELD
XIF4420	39 14 23	76 22 00	CB-3	CHESBAY	UPPER CHESAPEAKE BAY	2060001	BENTHIC NEAR FIELD
XIF4514	39 14 32	76 21 23	CB-3	CHESBAY	UPPER CHESAPEAKE BAY	2060001	BENTHIC EPIFAUNAL
XIF4518	39 14 28	76 21 50	CB-3	CHESBAY	UPPER CHESAPEAKE BAY	2060001	BENTHIC EPIFAUNAL
XIF4715	39 14 40	76 21 28	CB-3	CHESBAY	UPPER CHESAPEAKE BAY	2060001	BENTHIC NEAR FIELD
XIF4811	39 14 49	76 21 07	CB-3	CHESBAY	UPPER CHESAPEAKE BAY	2060001	BENTHIC EPIFAUNAL
XIF4811	39 14 50	76 21 07	CB-3	CHESBAY	UPPER CHESAPEAKE BAY	2060001	BENTHIC NEAR FIELD
XIF4813	39 14 46	76 21 16	CB-3	CHESBAY	UPPER CHESAPEAKE BAY	2060001	BENTHIC EPIFAUNAL
XIF5145	39 14 39	76 23 55	CB-3	CHESBAY	UPPER CHESAPEAKE BAY	2060001	BENTHIC REFERENCE
XIF5297	39 15 33	76 19 53	CB-3	CHESBAY	UPPER CHESAPEAKE BAY	2060001	BENTHIC REFERENCE
XIF5406	39 15 25	76 20 35	CB-3	CHESBAY	UPPER CHESAPEAKE BAY	2060001	BENTHIC NEAR FIELD
XIF5710	39 15 39	76 20 57	CB-3	CHESBAY	UPPER CHESAPEAKE BAY	2060001	BENTHIC NEAR FIELD
XIF6388	39 16 15	76 20 50	CB-3	CHESBAY	UPPER CHESAPEAKE BAY	2060001	BENTHIC REFERENCE
XIG5405	39 15 23	76 20 28	CB-3	CHESBAY	UPPER CHESAPEAKE BAY	2060001	BENTHIC NEAR FIELD
XIG7689	39 16 58	76 18 51	CB-3	CHESBAY	UPPER CHESAPEAKE BAY	2060001	BENTHIC REFERENCE

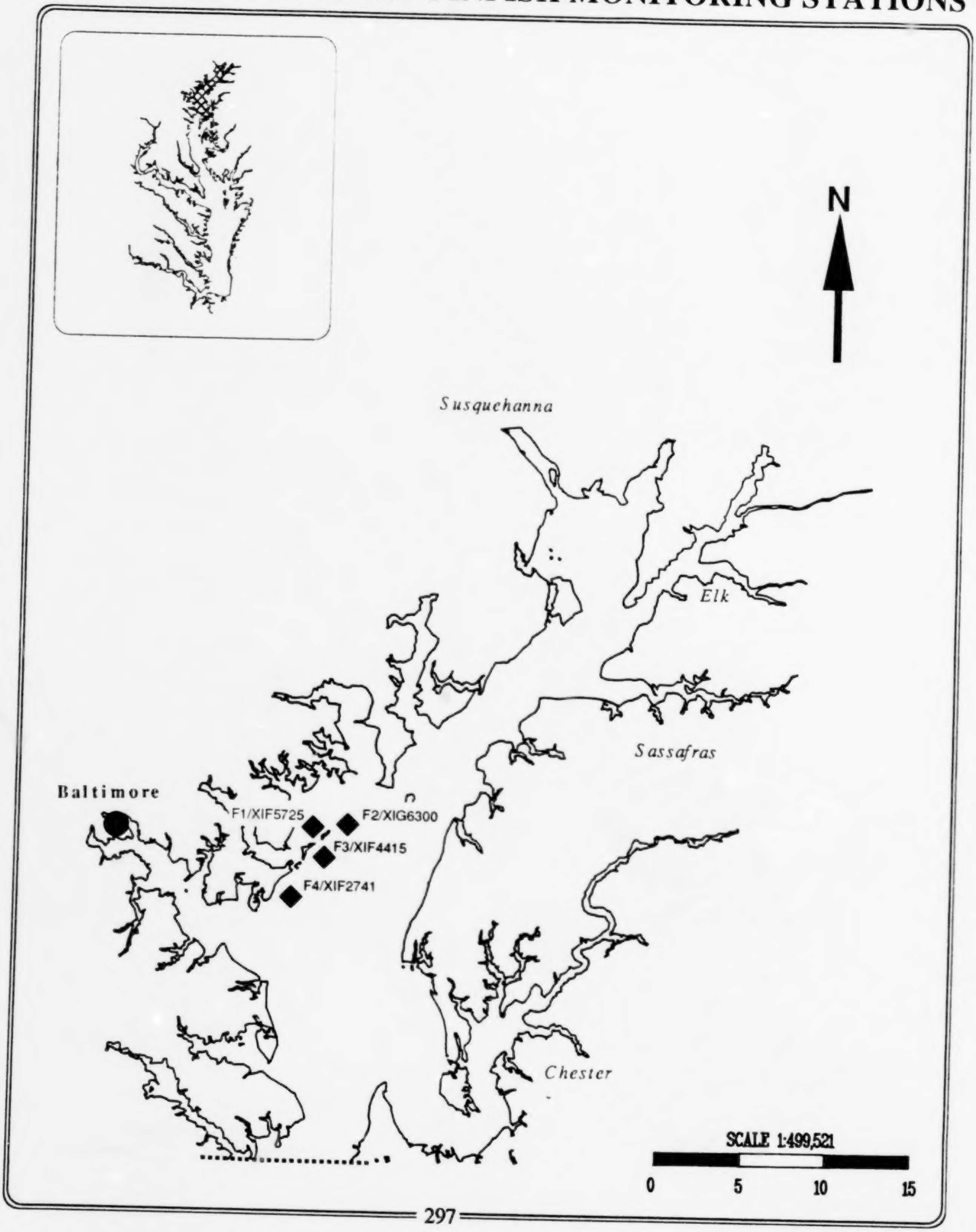
HART-MILLER ISLAND FINFISH MONITORING STATIONS

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
F1/XIF5725	39 15 43	76 22 32	CB-3	CHESBAY	UPPER CHESAPEAKE BAY	2060001	HAWK COVE AREA TRAWL STATION
F2/XIG6300	39 16 16	76 20 02	CB-3	CHESBAY	UPPER CHESAPEAKE BAY	2060001	NE SIDE OF DIKE TRAWL STATION
F3/XIF4415	39 14 25	76 21 31	CB-3	CHESBAY	UPPER CHESAPEAKE BAY	2060001	SE SIDE OF DIKE TRAWL STATION
F4/XIF2741	39 12 41	76 24 08	CB-3	CHESBAY	UPPER CHESAPEAKE BAY	2060001	BLACK MARSH TRAWL STATION

HART-MILLER ISLAND BENTHIC ORGANISM MONITORING STATIONS



HART-MILLER ISLAND FINFISH MONITORING STATIONS



DISTRICT OF COLUMBIA FINFISH TISSUE MONITORING PROGRAM

PROGRAM DESCRIPTION: The District of Columbia Finfish Tissue Monitoring Program has been conducted annually since 1980. This program monitors finfish tissue at four discrete areas in the Potomac and Anacostia rivers.

PROGRAM OBJECTIVE: To protect public health and analyze possible trends in the bioaccumulation and tissue loading of certain toxic substances. The survey has been designed to screen for those priority pollutants found harmful to human health, with certain finfish species targeted by virtue of their relative popularity as food fish.

DATE INITIATED: 1980

COORDINATING AGENCY:
District of Columbia Department of Consumer and Regulatory Affairs
Housing and Environmental Regulation Administration
Environmental Control Division
Water Quality Monitoring Section
5010 Overlook Avenue, S.W.
Washington, D.C. 20032

FUNDING AGENCIES:
D.C. Department of Consumer and Regulatory Affairs
U.S. EPA Region III

PARTICIPATING AGENCIES:
D.C. Department of Consumer and Regulatory Affairs (DCDCRA)
U.S. EPA Central Regional Laboratory (CRL)

INVESTIGATORS:

Program Coordinator	Hamid Karimi	DCDCRA
Laboratory Analysis	Alvin Robertson	CRL

PARAMETERS:

Arsenic
Cadmium
Chromium
Copper
Lead
Mercury
Selenium
Zinc
Aldrin
Alpha BHC
Beta endosulfan
Chlordane
4,4 'DDD
4,4 'DDE
4,4 'DDT
Endrin aldehyde
Dieldrin
Endosulfan sulfate
Endrin
Heptachlor
Heptachlor epoxide
Lindane
Toxaphene
PCB 1016
PCB 1221
PCB 1232
PCB 1242
PCB 1248
PCB 1254
PCB 1260

STATIONS: Collection areas are in the upper Potomac River, the lower Potomac River, the upper Anacostia River and the lower Anacostia River. Within these collection areas, four individual sites are sampled.

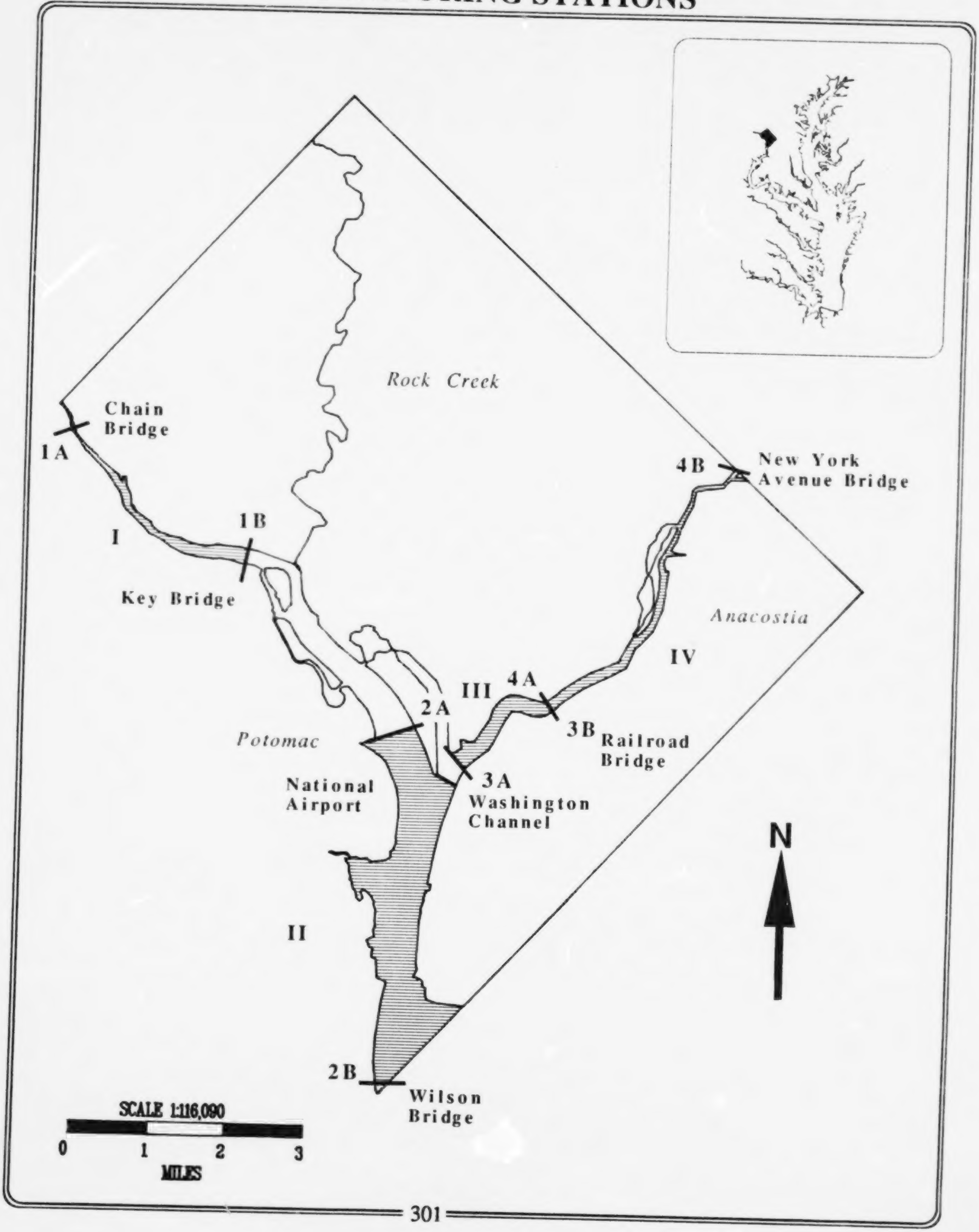
SAMPLE COLLECTION: Collections of finfish are made annually using one or more of the following techniques: gill nets, shore seines, otter trawls, or electrofishing. Finfish targeted include bottom feeders such as channel catfish or carp, predators such as pumpkinseed, white perch, or small/largemouth bass, and anadromous fish such as river herring, blueback herring, American shad, and striped bass. Each sample consists of at least five whole finfish of the same species caught at the same location to make an aggregate weight of 500 grams.

PROGRAM INTEGRATION: Finfish tissue data are compared with routine ambient monitoring data for collaboration and support of trend analyses.

DISTRICT OF COLUMBIA FINFISH TISSUE MONITORING STATIONS

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
1A	38 55 46	77 07 02	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	POTOMAC AT CHAIN BRIDGE
1B	38 54 08	77 04 11	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	POTOMAC AT KEY BRIDGE
2A	38 50 58	77 01 29	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	NATIONAL AIRPORT
2B	38 47 40	77 01 41	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	WILSON BRIDGE
3A	38 51 31	77 01 03	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	WASHINGTON CHANNEL
3B	38 52 38	76 58 20	BFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	ANACOSTIA ST RAILROAD BRIDGE
4A	38 52 38	76 58 20	BFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	ANACOSTIA ST RAILROAD BRIDGE
4B	38 55 05	76 56 31	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	NEW YORK AVENUE BRIDGE

DISTRICT OF COLUMBIA FINFISH TISSUE MONITORING STATIONS



VIRGINIA FINFISH TISSUE MONITORING PROGRAM

PROGRAM DESCRIPTION: The Virginia Finfish Tissue Monitoring Program is accomplished at a network of 48 stations monitored at approximately three-year intervals. Fish are collected by the Office of Environmental Research and Standards (OERS) staff using a variety of electrofishing, net, and hook and line techniques.

PROGRAM OBJECTIVE: To monitor for the presence of metal and organic pollutant contamination in fish tissue and monitor trends of these compounds in fish tissue in Virginia's waters.

DATE INITIATED: 1979

COORDINATING AGENCY:

Virginia Water Control Board
Office of Environmental Research and Standards
2111 North Hamilton Street
Richmond, Virginia 23230

FUNDING AGENCY:

Virginia Water Control Board
U.S. EPA Region III

PARTICIPATING AGENCIES:

Virginia Water Control Board (VWCB)
Virginia Division of Consolidated Laboratories (DCLS)

INVESTIGATORS:

Program Coordinator	Robert Ray	VWCB

PARAMETERS:

- Aldrin
- Dieldrin
- Endrin
- Heptachlor
- Methoxychlor
- Nonachlor
- Hexachlorobenzene
- Chlordane
- ß, gamma, BHC
- Toxaphene
- Pentachloroanisole
- Arsenic
- Cadmium
- Chromium
- Copper
- Lead
- Mercury
- Nickel
- Silver
- Zinc
- Total PCB
- Arochlor 1248
- Arochlor 1254
- Arochlor 1260
- Total DDT
- Total DDE
- Total DDD

STATIONS: There are 48 stations involved in a three-year rotational sampling effort, 23 of which are located within the Virginia's Chesapeake Bay drainage basin.

SAMPLE COLLECTION: Three composite samples of five individual finfish are collected at each station. Two composites of predator species are composed of edible fillets with skin. Composite samples composed of predators species such as catfish species, American eel, and oyster toad are prepared as edible fillets without skin. The third composite is composed of five whole organism samples of bottom feeding species.

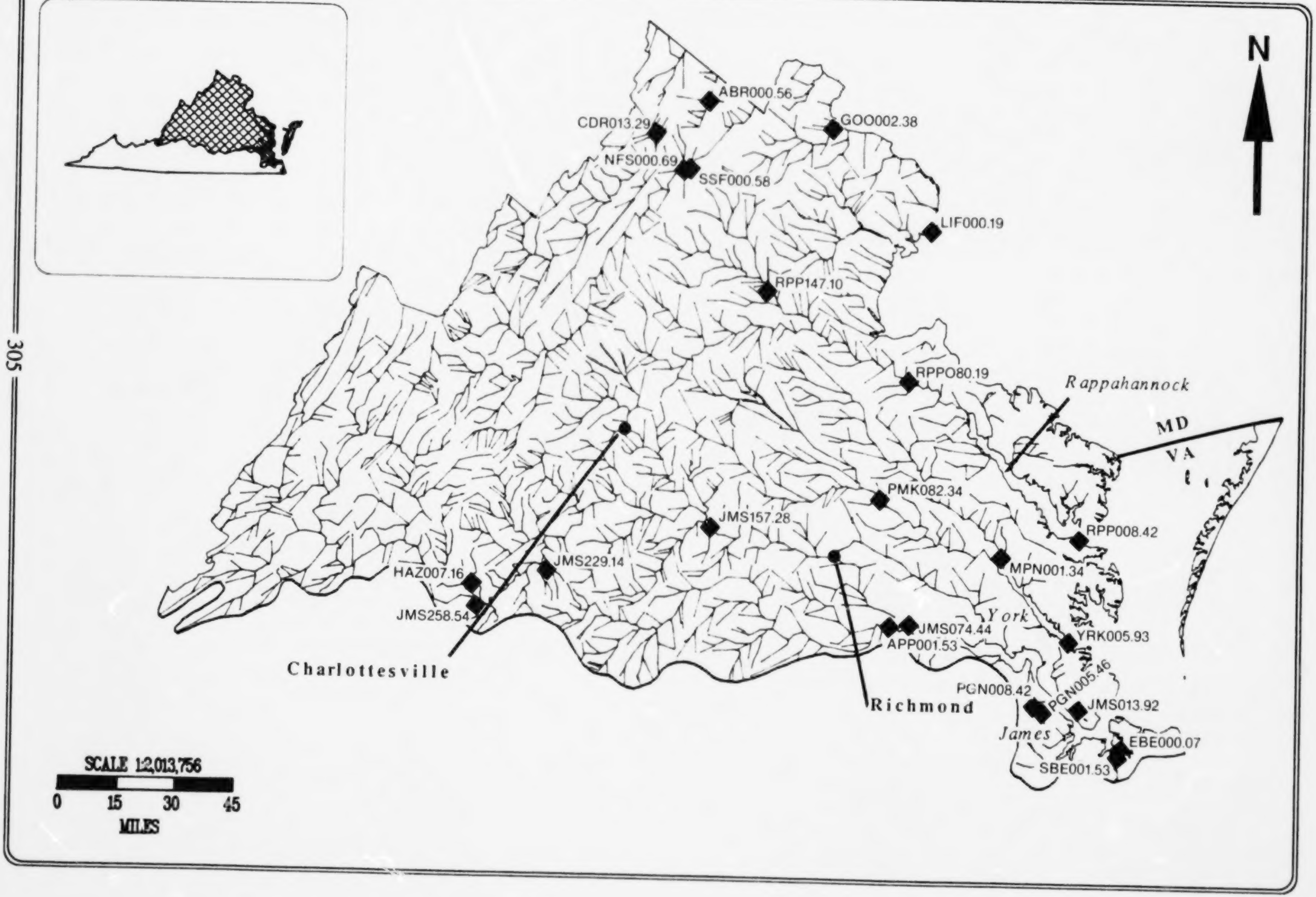
Fish are kept on ice in the field, processed in the VWCB Office of Environmental Research and Standards lab and kept frozen until analysis by the DCLS. Results are entered into the USEPA STORET system.

PROGRAM INTEGRATION: These stations are also sampled under the Virginia Ambient Water Quality Monitoring Program.

VIRGINIA FINFISH TISSUE MONITORING STATIONS

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
ABR000.56	39 10 56	78 05 06	AFL	POTOMAC	CONOCOCHEAGUE-OPEQUON	2070004	ABRAMS CREEK NEAR WINCHESTER AT
APP001.53	37 18 41	77 17 49	TF-5	JAMES	LOWER JAMES	2080206	APPOMATTOX RIVER AT HOPEWELL -
CDR013.29	39 04 40	78 19 34	AFL	POTOMAC	NORTH FORK SHENANDOAH	2070006	CEDAR CREEK OUTSIDE ON WINCHEST
EBE000.07	36 50 28	76 17 11	LE-5	JAMES	LOWER JAMES	2080206	E. BRANCH ELIZABETH RIVER
GOO002.38	39 05 08	77 30 41	AFL	POTOMAC	MIDDLE POTOMAC CATOCTIN	2070008	GOOSE CR NEAR LEESBURG AT RT 7
HAZ007.16	37 29 06	79 09 57	AFL	JAMES	MIDDLE JAMES-BUFFALO	2080203	HARRIS CR ABOVE LYNCH, RT 130 A
JMS013.92	36 59 29	76 28 00	LE-5	JAMES	LOWER JAMES	2080206	JAMES RIVER IN NEWPORT NEWS - J
JMS074.44	37 19 01	77 13 25	TF-5	JAMES	LOWER JAMES	2080206	JAMES RIVER BELOW HOPEWELL AT R
JMS157.28	37 40 13	78 05 13	AFL	JAMES	MIDDLE JAMES-WILLIS	2080205	JAMES RIVER AT CARTERSVILLE, RT
JMS229.14	37 32 11	78 49 39	AFL	JAMES	MIDDLE JAMES-BUFFALO	2080203	JAMES RIVER AT BENT CR RT 60
JMS258.54	37 24 20	79 08 50	AFL	JAMES	MIDDLE JAMES-BUFFALO	2080203	JAMES RIVER, LYNCHBURG AT RT 29
LIF000.19	38 42 46	77 04 29	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	LITTLE HUNTING CREEK AT GW PARK
MPN001.34	37 32 30	76 47 31	BFL	YORK	MATTAPONI	2080105	MATTAPONI RIVER AT WEST POINT -
NFS000.69	38 57 00	78 11 58	AFL	POTOMAC	NORTH FORK SHENANDOAH	2070006	N. FORK SHENANDOAH AT FRONT ROY
PGN005.46	36 59 19	76 37 51	BFL	JAMES	LOWER JAMES	2080206	PAGAN RIVER IN SMITHFIELD AT RT
PGN008.42	37 00 24	76 39 48	BFL	JAMES	LOWER JAMES	2080206	PAGAN RIVER UPSTREAM OF SMITHFI
PMK082.34	37 46 04	77 19 56	BFL	YORK	PAMUNKEY	2080106	PAMUNKEY RIVER BELOW HANOVER AT
RPP008.42	37 36 15	76 26 12	BFL	RAPPAHANNOCK	LOWER RAPPAHANNOCK	2080104	RAPPAHANNOCK RIVER AT GREYS POI
RPP080.19	38 10 29	77 11 19	TF-3	RAPPAHANNOCK	LOWER RAPPAHANNOCK	2080104	RAPPAHANNOCK RIVER AT PORT ROYA
RPP147.10	38 31 10	77 49 20	AFL	RAPPAHANNOCK	RAPIDAN-UPPER RAPPAHANNOCK	2080103	RAPPAHANNOCK RIVER AT REMINGTON
SBE001.53	36 49 48	76 17 30	LE-5	JAMES	LOWER JAMES	2080206	S. BRANCH ELIZABETH RIVER
SSF000.58	38 56 32	78 11 57	AFL	POTOMAC	NORTH FORK SHENANDOAH	2070006	S. FORK SHENANDOAH AT FRONT ROY
YRK005.93	37 14 36	76 30 24	LE-4	YORK	YORK	2080107	YORK RIVER AT YORKTOWN - RT 17

VIRGINIA FINFISH TISSUE MONITORING STATIONS



VIRGINIA KEPONE FINFISH TISSUE MONITORING PROGRAM

PROGRAM DESCRIPTION: The Virginia Kepone Finfish Tissue Monitoring Program was established as a result of the contamination of the James River and Hopewell, Virginia by disposal and wastewater discharges of kepone. This program monitors finfish tissue residues from finfish collected within six zones.

PROGRAM OBJECTIVE: To assess the magnitude of kepone contamination.

DATE INITIATED: 1976

COORDINATING AGENCY:

Virginia Water Control Board
Office of Environmental Research and Standards
2111 North Hamilton Street
Richmond, Virginia 23230

FUNDING AGENCY: Virginia Water Control Board

PARTICIPATING AGENCIES:

Virginia State Water Control Board (VWCB)
Virginia Institute of Marine Science (VIMS)

INVESTIGATORS:

Program Coordinator	Gail Walton	VWCB
Chemical Analysis	Harold Sloane	VIMS

PARAMETERS:

Kepone

Species Collected by Zone:

Zone A
- Spot
- Croaker
- Gray trout
- Bluefish
- American eel

Zone B
- Spot
- Croaker
- Gray trout
- Bluefish
- Striped bass

Zone C
- White perch
- Striped bass

Zone D
- Largemouth bass
- Sunfish
- American eel

Zone H
- Largemouth bass
- Sunfish

Zone K
- White perch

STATIONS: Finfish samples are collected from five zones covering the entire tidal stretch of the James River from Newport News to Richmond, and from one zone in the Chickahominy River.

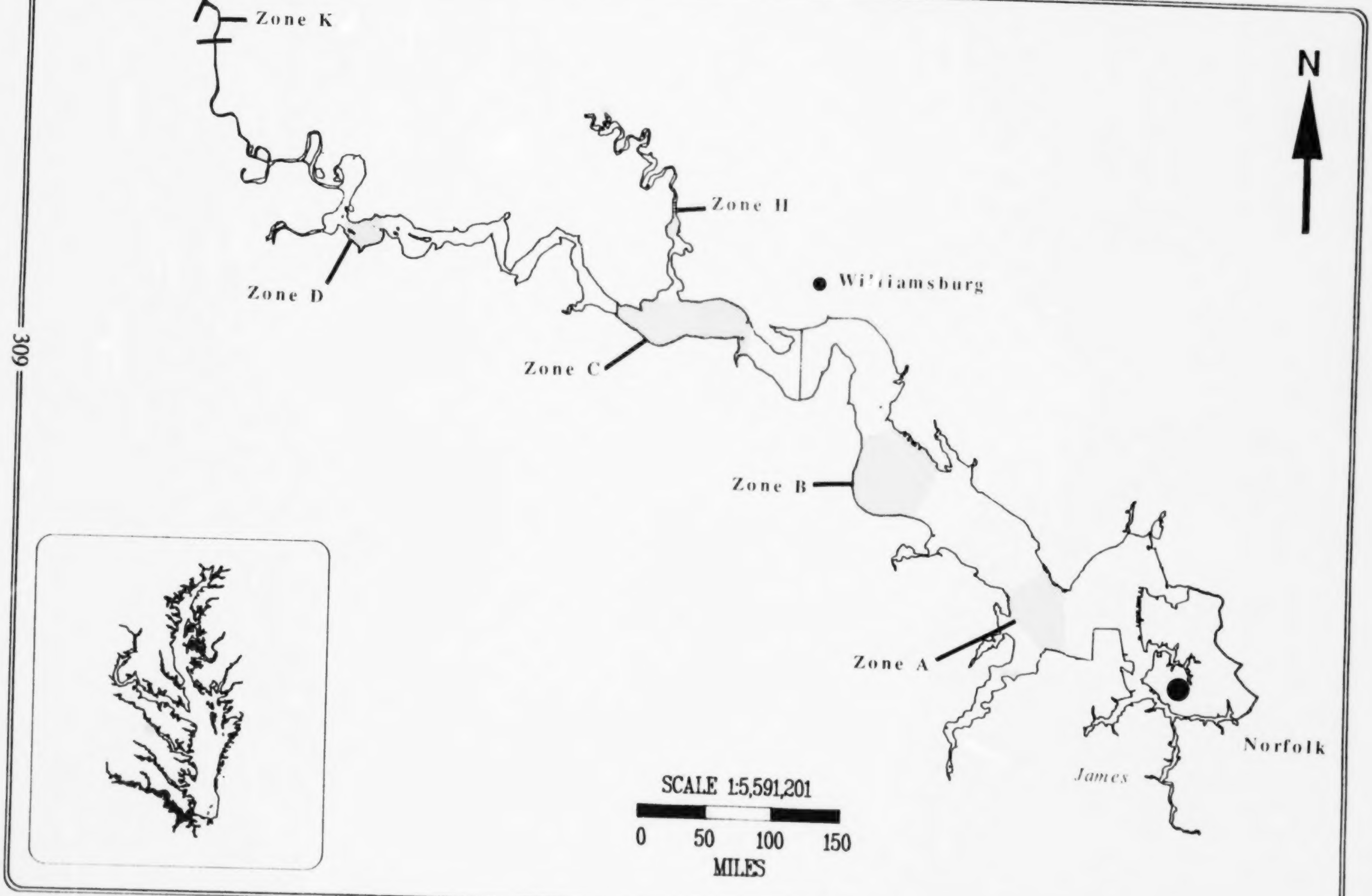
SAMPLE COLLECTION: Fish samples are collected by electrofishing in freshwater zones and by gill nets, trawling or haul seining, and/or hook and line in saline zones. American eel samples are collected by electrofishing and eel pots. At the laboratory, an edible meat filet is homogenized in a blender and analyzed for kepone.

PROGRAM INTEGRATION: In December 1975, the Virginia Kepone Task Force developed a comprehensive kepone monitoring program with responsibilities divided among the Virginia Water Control Board, the Virginia Department of Health and the Virginia Institute of Marine Science. The finfish monitoring program is integrated with the ongoing groundwater and sediment monitoring programs.

VIRGINIA KEPONE FINFISH TISSUE MONITORING STATIONS

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
ZONE A-E	36 56 30	76 24 40	LE-5	JAMES	LOWER JAMES	2080206	SMALL BOAT HARBOR TO JAMES RIVE
AW	37 00 07	76 28 10	TF-5	JAMES	LOWER JAMES	2080206	"
ZONE B-E	37 03 18	76 35 23	LE-5	JAMES	LOWER JAMES	2080206	BURWELL BAY AREA BETWEEN BUOY R
BW	37 06 06	76 37 28	TF-5	JAMES	LOWER JAMES	2080206	"
ZONE C-E	37 12 15	76 47 15	RET-5	JAMES	LOWER JAMES	2080206	MOUTH OF CHICKAHOMINY BET BUOY
CW	37 14 00	76 56 45	RET-5	JAMES	LOWER JAMES	2080206	"
ZONE D-E	37 19 00	77 13 31	TF-5	JAMES	LOWER JAMES	2080206	BENJAMIN HARRISON BRIDGE TO BUO
DW	37 19 10	77 16 40	RET-5	JAMES	LOWER JAMES	2080206	"
ZONE H-E	37 20 20	76 52 31	RET-5	JAMES	LOWER JAMES	2080206	BUOY 7 TO SHIPYARD CREEK
HW	37 17 43	76 52 26	LE-5	JAMES	LOWER JAMES	2080206	"
ZONE K-E	37 31 18	77 25 08	BFL	JAMES	MIDDLE JAMES-WILLIS	2080205	GILLE CREEK AREA TO MAYO BRIDGE
KW	37 31 45	77 26 04	LE-5	JAMES	LOWER JAMES	2080206	"

VIRGINIA KEPONE FINFISH MONITORING STATIONS



WEST VIRGINIA FISH TISSUE SAMPLING PROGRAM

PROGRAM DESCRIPTION: The West Virginia Fish Tissue Sampling Program consists of approximately 20 locations statewide, three of which are located within the Chesapeake Bay basin. Fish populations from these locations are sampled in order to carry out analyses for heavy metals and organic compounds as well as for other target constituents associated with specific concerns. Efforts are made in choosing the target species to include one bottom-feeder and one top predator.

PROGRAM OBJECTIVES: To measure substances not readily detected in the water column. To monitor spatial and temporal trends and determine the biological fate of specific chemicals. To provide information to be used in making human health risk assessments from ingestion of fish.

DATE INITIATED: 1979

COORDINATING AGENCY:

West Virginia Department of Natural Resources
Division of Water Resources
1201 Greenbrier Street
Charleston, WV 25311

FUNDING AGENCY: West Virginia Department of Natural Resources

PARTICIPATING AGENCY: West Virginia Department of Natural Resources (WVDNR)

INVESTIGATOR:

Program Supervisor	Mike Zeto	WVDNR

PARAMETERS:

Arsenic
Cadmium
Chromium
Copper
Lead
Mercury
Nickel
Silver
Zinc
Alpha BHC
Delta BHC
Aldrin
Dieldrin
Endrin
Heptachlor
Heptachlor Epoxide

o,p' DDD
o,p' DDD
o,p' DDE
o,p' DDE
o,p' DDT
p,p' DDT
Arochlor 1254
Arochlor 1260
Trans-Chlordane
Cis-Chlordane
Hexachloro-benzene
Methoxychlor
Trans-Nonachlor
Cis-Nonachlor
Toxaphene

STATIONS: There are three stations located within the Chesapeake Bay basin.

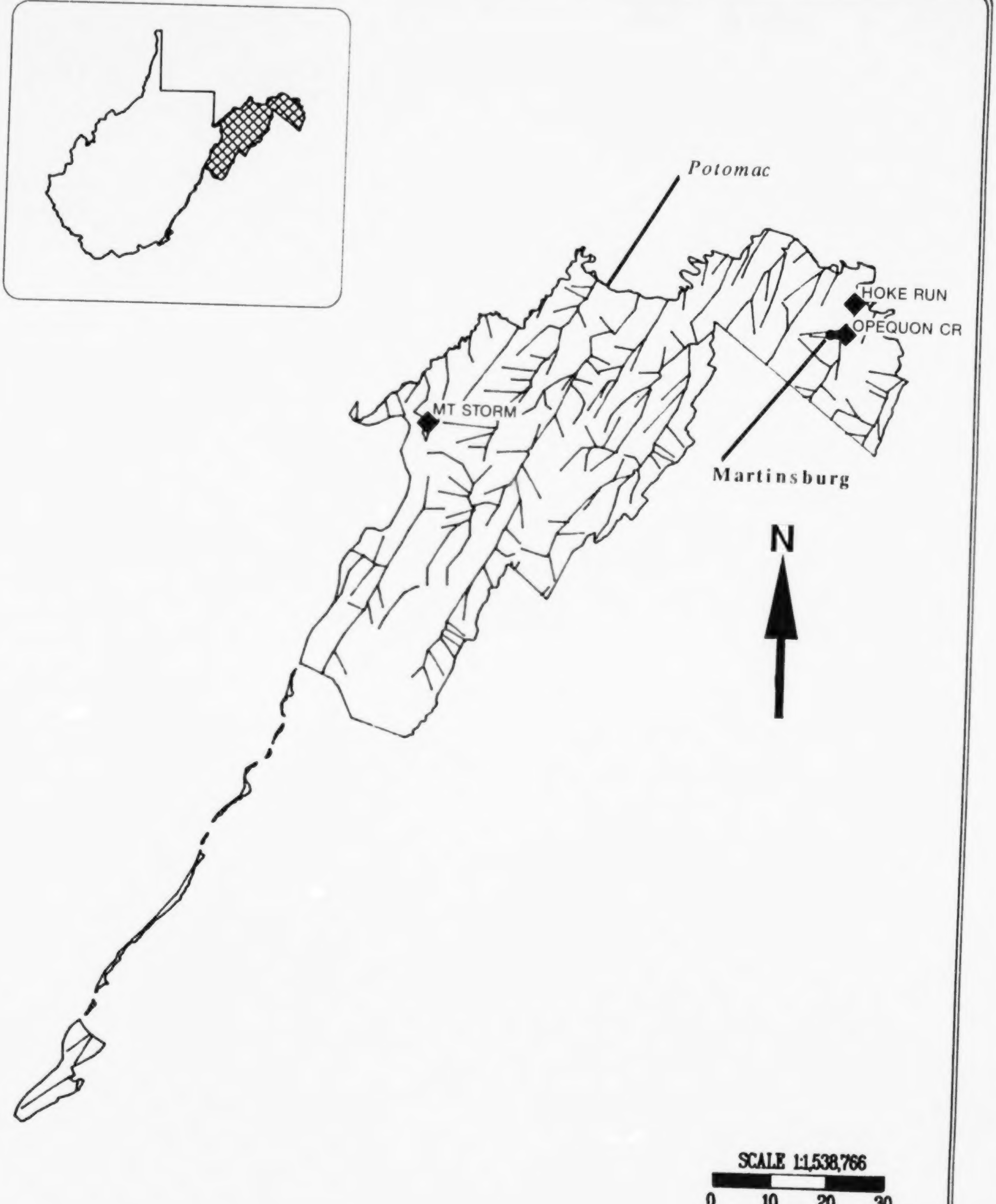
SAMPLE COLLECTION: Normally two samples are collected, each comprised of a composite of five individuals per species. Efforts are made to take one bottom-feeder and one top predator as target species at each site. Consistency between sites is a goal, although variations in species are often necessary to complete samples. Intensive surveys of additional fish tissue, water, sediments and effluents are among the actions taken upon finding high levels of contaminants in a tissue sample.

PROGRAM INTEGRATION: N/A

WEST VIRGINIA FINFISH TISSUE MONITORING STATIONS

STATION NAME (S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
HOKE RUN	39 31 17	77 53 43	AFL	POTOMAC	CONOCOCHEAGUE-OPEQUON	2070004	0.3 MILES ABOVE MOUTH OF HOKE R
MT STORM	39 12 27	79 15 44	AFL	POTOMAC	NORTH BRANCH POTOMAC	2070002	AT THE DAM ON MT STORM LAKE
OPEQUON CR	39 26 42	77 55 40	AFL	POTOMAC	CONOCOCHEAGUE-OPEQUON	2070004	NINE MILES ABOVE MOUTH OF OPEQU

WEST VIRGINIA FINFISH TISSUE SAMPLING STATIONS



U.S. FISH AND WILDLIFE SERVICE NATIONAL CONTAMINANT BIOMONITORING PROGRAM

PROGRAM DESCRIPTION: The U.S. Fish and Wildlife Service National Contaminant Biomonitoring Program is part of a nation-wide program to monitor pesticide residues in finfish, waterfowl and other birds. Resident finfish samples are collected every two years at three stations within the Chesapeake Bay basin and analyzed for selected pesticides and metals. The program also includes tissue analysis of starlings and duck (mallard and black) wings collected every three years.

PROGRAM OBJECTIVE: To determine trends of contaminant bioaccumulation in indicator finfish, waterfowl and bird species.

DATE INITIATED: 1965 (waterfowl); 1967 (finfish, starlings)

COORDINATING AGENCY:

U.S. Fish and Wildlife Service
National Fisheries Center
Columbia, Missouri 65200

FUNDING AGENCY: U.S. Fish and Wildlife Service

PARTICIPATING AGENCIES:

USFWS National Fisheries Center (USFWS-NFC)
USFWS Patuxent Wildlife Research Center (USFWS - PWRC)
USFWS Annapolis Field Office (USFWS-AFO)

INVESTIGATORS:

Laboratory Director	P. Merhrle	USFWS - NFC
Laboratory Director	H. O'Connor	USFWS - PWRC

PARAMETERS:

Species
Weight
Length
Percent Lipids
Percent Moisture
Total DDT
DDT
DDD
DDE
Aroclor
Toxaphene
Dieldrin
Aldrin
Endrin
alpha - BHC
BCB
Heptachlor
Heptachlor epoxide
Cischlordane
Transchlordane
Cisnonachlor
Transnonachlor
Lindane
Dacthal
Oxychlordane
Total PCB
As
Cd
Cu
Pb
Hg
Se
Zn

STATIONS: There are three stations located in the Chesapeake Bay basin: the Susquehanna River at Conowingo Dam, the Potomac River at Little Falls, and the James River at Richmond.

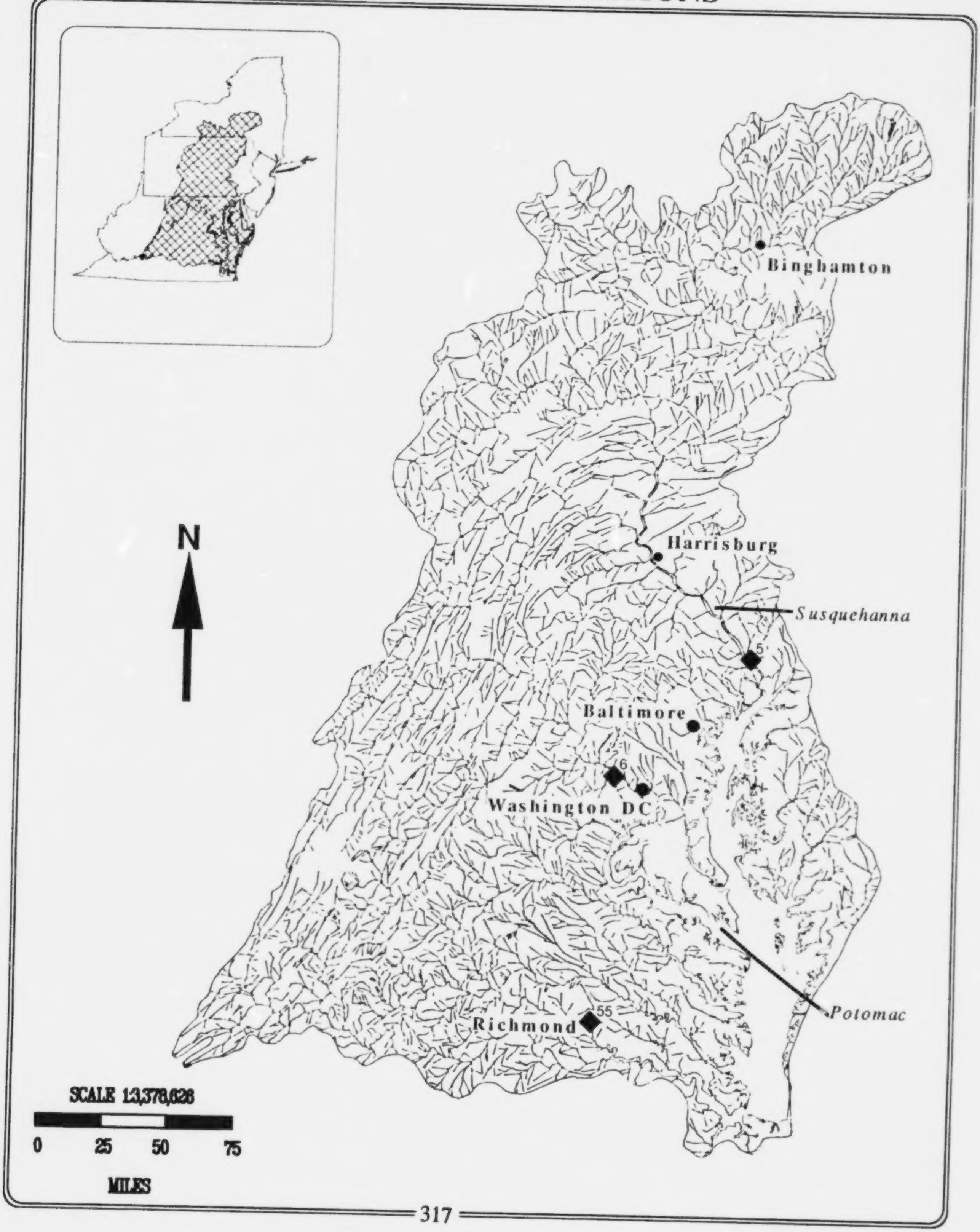
SAMPLE COLLECTION: All samples are collected during the fall. Every two years, three composite samples of no fewer than five finfish are collected at each station. Two of the composite samples are composed of resident bottom feeding finfish such as carp, suckers or catfish. The third composite sample is composed of resident predator finfish species (i.e. bass). Starlings and duck (mallard and black) wings are collected every three years. The duck wings are submitted by hunters within the Atlantic Flyway region near the designated station.

PROGRAM INTEGRATION: N/A

USFWS NATIONAL CONTAMINANT BIOMONITORING STATIONS

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
5	39 39 40	76 10 30	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	SUSQUEHANNA RIVER AT CONOWINGO
55	37 32 30	77 26 50	BFL	JAMES	MIDDLE JAMES-WILLIS	2080205	JAMES RIVER AT RICHMOND, VA
6	39 00 00	77 14 48	AFL	POTOMAC	MIDDLE POTOMAC CATOCTIN	2070008	POTOMAC RIVER AT LITTLE FALLS,

USFWS NATIONAL CONTAMINANT BIOMONITORING STATIONS



NOAA NATIONAL STATUS AND TRENDS PROGRAM - BENTHIC SURVEILLANCE PROJECT

PROGRAM DESCRIPTION: The National Oceanic and Atmospheric Administration (NOAA) National Status and Trends (NS&T) Program surveys a wide range of environmental measurements to assess impacts of human activity on coastal and estuarine regions. The Benthic Surveillance project is a part of the NS&T Program in which chemical components are assessed in surficial bottom sediments, and in muscle tissues and livers of bottom-feeding fish at approximately 50 stations nationwide and up to five locations in the Chesapeake Bay (depending on resources). The target species in the Chesapeake Bay is the Atlantic Croaker. Selected Benthic Surveillance samples are stored at the National Institute of Standards and Technology through the NS&T Program's Specimen Banking project for potential future research.

PROGRAM OBJECTIVE: To assess chemical contaminants in sediments and fish tissues as a means of documenting the status and long-term changes of environmental quality in the Bay and in coastal and estuarine environs nationwide.

DATE INITIATED: 1984

COORDINATING AGENCY:

National Oceanic and Atmospheric Administration
Ocean Assessments Division
Office of Oceanography and Marine Assessment
Rockwall Building
11400 Rockville Pike
Rockville, Maryland 20852

FUNDING AGENCY:

National Oceanic and Atmospheric Administration

PARTICIPATING AGENCIES:

National Oceanic and Atmospheric Administration (NOAA)
National Institute of Standards and Technology (NIST)

INVESTIGATORS:

Project Manager	Thomas O'Connor	NOAA/OMA
Principal Investigator	Andrew Robertson	NOAA/OMA
Speciman Banking	Gunnar Lauenstein	NOAA/OMA
Quality Assurance	Carol-Ann Manen	NOAA/OMA

PARAMETERS:

Bottom Sediment and Fish Tissue:
PAHs (Polynuclear Aromatic Hydrocarbons)
PCBs (Polychlorinated Biphenyls)
Additional Chlorinated Hydrocarbons
Aluminum
Silicon
Chromium
Manganese
Iron
Nickel
Copper
Zinc
Arsenic
Selenium
Tin

Antimony
Silver
Cadmium
Mercury
Thallium
Lead

Bottom Sediment Only:
Grain Size
Total Organic Carbon

Microbial Sewage Tracer (*clostridium portringens*)

Fish Only:
Length
Weight
Age
Histopathology and Visible Lesions
PAH Metabolites (Bile)
Food Organism Identification (Stomach)

STATIONS: There are five benthic surveillance stations located in the lower, middle and upper Bay, the Elizabeth River and the Baltimore Harbor.

SAMPLE COLLECTION: Fish and sediment samples for the benthic surveillance program are collected at five stations in the Chesapeake Bay annually. At each sampling site, three stations are sampled. Trawls for bottomfish are conducted as close to the sediment stations as possible. A sediment sample is taken with a box corer or a Smith-Macintyre bottom grab at each of the three stations at the site. These samples are then combined to form a composite sample.

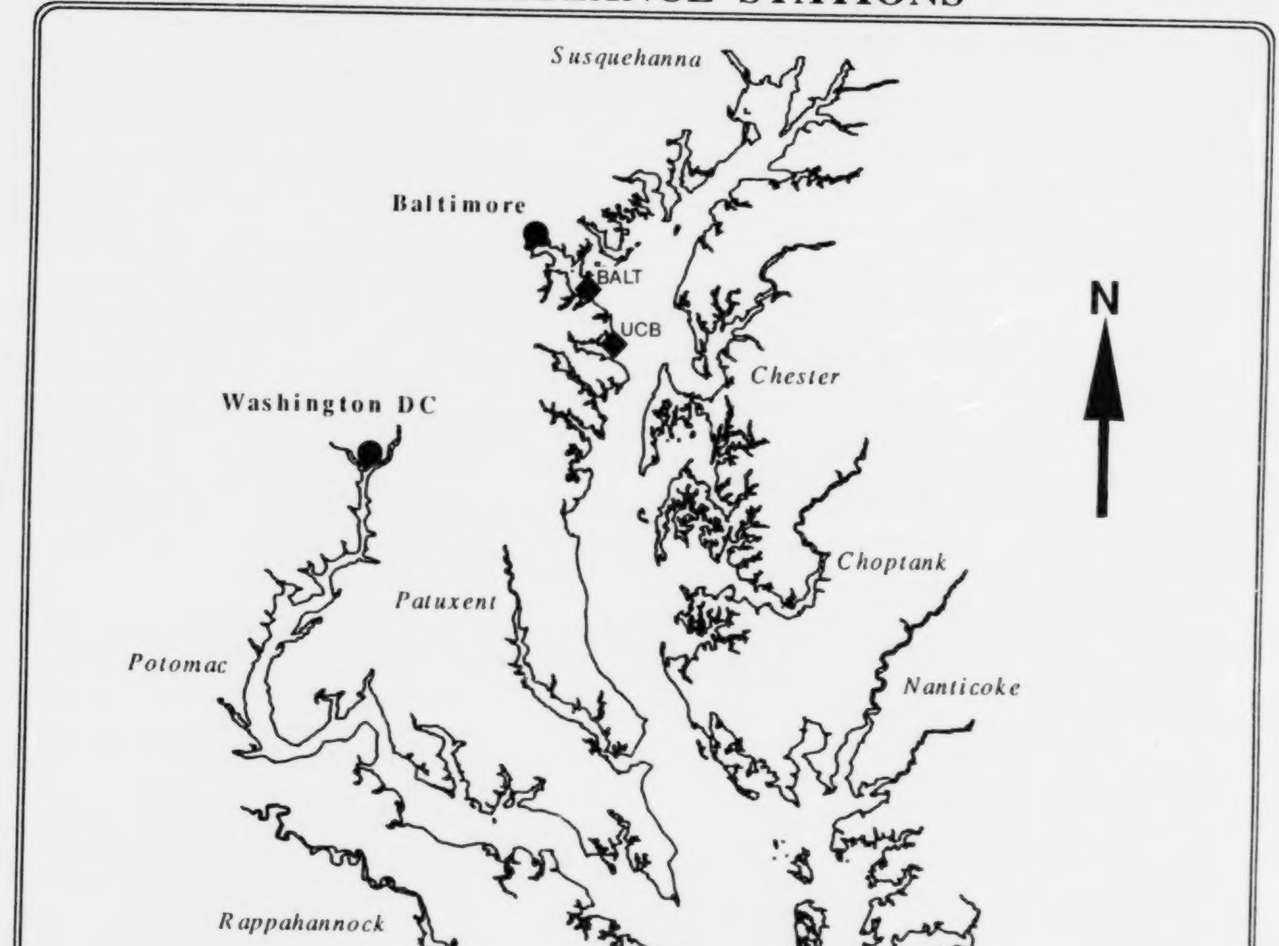
Sampling of the target species of fish, the Atlantic Croaker, is performed in 15-20 minute trawls which are made to minimize net damage to specimens. Visible lesions are noted and liver, stomach and bile samples are taken for histopathological, organic chemical and trace metal analyses, and for archiving. Interim storage of tissue and sediment does not exceed one day. Samples designated for the speciman bank are frozen with liquid nitrogen.

PROGRAM INTEGRATION: Chesapeake Bay is sampled as part of a nationwide sampling program which includes approximately 50 benthic surveillance sites.

NOAA STATUS AND TRENDS BENTHIC SURVEILLANCE STATIONS

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
BALT	39 11 00	76 30 00	WT-5	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	BALTIMORE HARBOR
ELIZ	37 00 00	76 20 00	LE-5	JAMES	LOWER JAMES	2080206	ELIZABETH RIVER
LCB	37 05 00	76 10 00	CB-8	CHESBAY	LOWER CHESAPEAKE BAY	2080101	LOWER CHESAPEAKE BAY
MCB	37 50 00	76 10 00	CB-5	CHESBAY	UPPER CHESAPEAKE BAY	2060001	MID CHESAPEAKE BAY
UCB	39 05 00	76 25 00	CB-3	CHESBAY	UPPER CHESAPEAKE BAY	2060001	UPPER CHESAPEAKE BAY

NOAA STATUS AND TRENDS BENTHIC SURVEILLANCE STATIONS



PENNSYLVANIA RADIOLOGICAL MONITORING PROGRAM

PROGRAM DESCRIPTION: The Pennsylvania Radiological Monitoring Program is conducted at five stations in the Chesapeake Bay basin and 12 stations throughout the state. All of the radiological stations are part of Pennsylvania's water quality network and are sampled on a monthly basis. Sampling at some of these stations began in 1988.

PROGRAM OBJECTIVE: To allow judgement of contamination at existing and future power plant sites.

DATE INITIATED: 1975

COORDINATING AGENCY:

Pennsylvania Department of Environmental Resources
Bureau of Water Quality Management
P.O. Box 2063
Harrisburg, Pennsylvania 17120

FUNDING AGENCY: Pennsylvania Department of Environmental Resources

PARTICIPATING AGENCY: Pennsylvania Department of Environmental Resources (PADER)

INVESTIGATORS:

Water Quality Assessment Chief	Richard Shertzer	PADER

PARAMETERS:

Gross Alpha
Gross Beta
Tritium

STATIONS: There are five stations located in Pennsylvania's Chesapeake Bay basin.

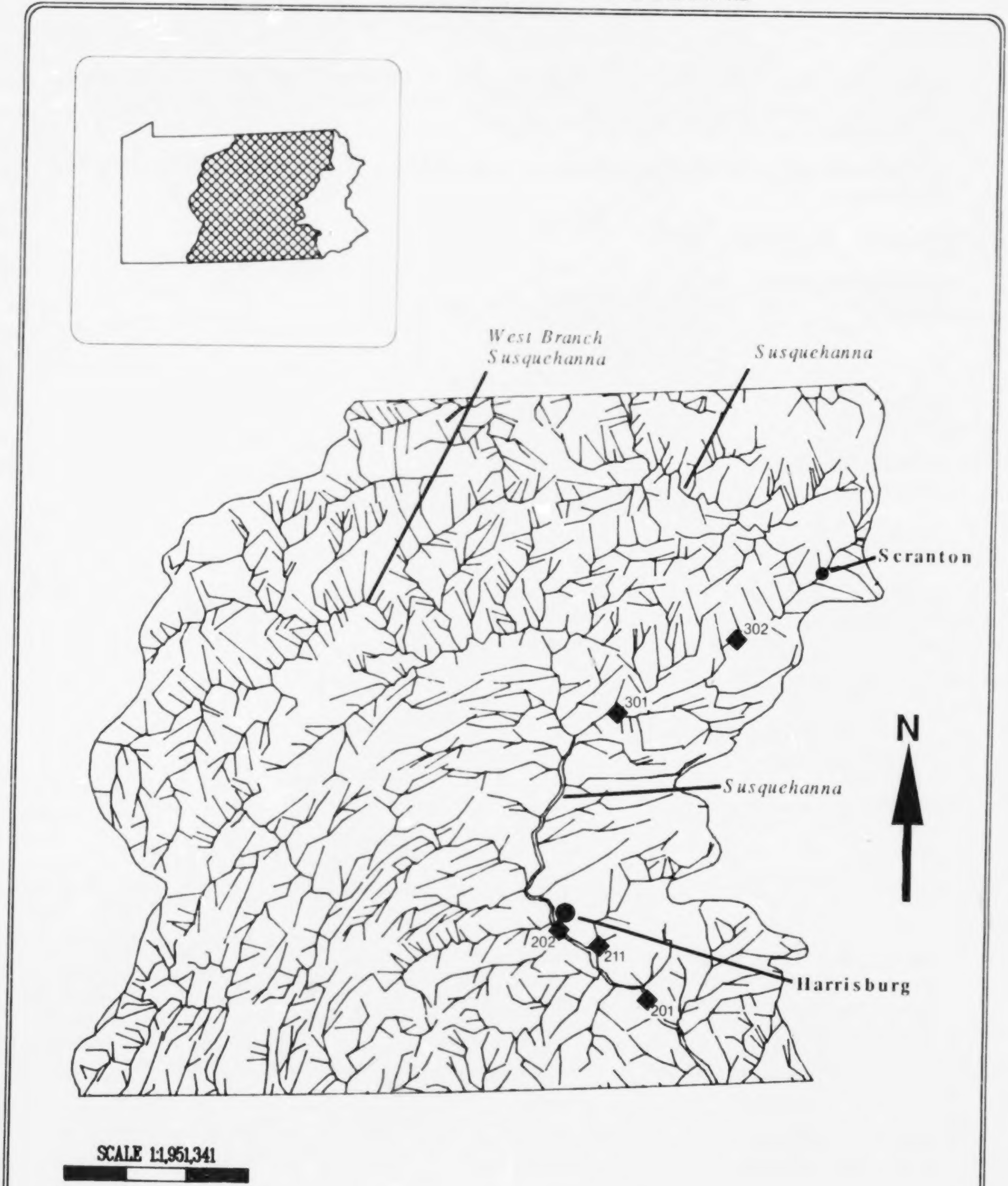
SAMPLE COLLECTION: At each station, a 1 liter grab sample is collected from mid-river and shipped to the laboratory for analysis. At stations where river width is great, grab samples are collected at three or four intervals across the river and composited before being taken to the lab. Samples are collected on a monthly basis.

PROGRAM INTEGRATION: The Pennsylvania Radiological stations are part of the Pennsylvania Water Quality Network.

PENNSYLVANIA RADIOLOGICAL MONITORING STATIONS

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
201	40 01 44	76 31 00	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	PA RTE. 462 COLUMBIA WRIGHTSVIL
202	40 15 27	76 53 12	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA-SWATARA	2050305	SUSQU. R. AT WALNUT ST. BR. IN
211	40 11 58	76 43 00	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA-SWATARA	2050305	SWATARA CR AT RT 441 BRIDGE IN
301	40 57 29	76 37 10	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-LACKAWANNA	2050107	N. BR. SUSQUEHANNA R. PR 65 BR
302	41 11 19	76 05 13	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-LACKAWANNA	2050107	SUSQU. R. RT 11 BR. NEAR RETREA

PENNSYLVANIA RADIOLOGICAL MONITORING STATIONS



PHILADELPHIA ELECTRIC COMPANY PEACH BOTTOM RADIOLOGICAL MONITORING PROGRAM

PROGRAM DESCRIPTION: The Philadelphia Electric Company Peach Bottom Radiological Monitoring Program involves surface water, drinking water, sediment and finfish monitoring in and around the Peach Bottom Atomic Power Station.

PROGRAM OBJECTIVE: To ensure no contamination occurs from the Peach Bottom Atomic Power Station.

DATE INITIATED: 1974

COORDINATING AGENCY:

Philadelphia Electric Company
2301 Market Street
Philadelphia, PA 19101

FUNDING AGENCY: Philadelphia Electric Company

PARTICIPATING AGENCIES:

Philadelphia Electric Company (PECO)
RMC Environmental Services (RMCES)

INVESTIGATORS:

Program Coordinator	Howard Hansell	PECO
Principal Investigator	Dilip Mathur	RMCES
Principal Investigator	Doug Wahl	RMCES

PARAMETERS:

Surface and Drinking Water:
Aqueous Tritium
Gross Beta
Gamma Spec
Gross Alpha
I-131

Sediment:
Gross Alpha
Gross Beta
Gamma Spec

Fish:
Sr-89,90
Gamma Spec

STATIONS: There are 18 stations: four surface water stations near the Peach Bottom intake (control) and discharge locations and the Chester water intake (one raw water, one from the pump discharge); two drinking water stations near the Conowingo and Holtwood Dams; six sediment stations at the Peach Bottom discharge canal, in the cooling tower pond, in the Conowingo Pond (three) and near Holtwood Dam (control); and six finfish stations at the Peach Bottom discharge canal, in the cooling tower pond, in the Conowingo Pond and in the Holtwood Pond (two controls).

SAMPLE COLLECTION: Surface and drinking water is continuously sampled at all six stations and collected in tanks. Each week two quarts are withdrawn and placed in a 2 gallon polyethylene bottle to form a monthly composite sample. This sample is tested for gross beta, gamma spec and gross alpha on a monthly basis at all stations, aqueous tritium on a quarterly basis at all drinking water stations and all but one surface water station (except Chester water pump discharge), and I-131 on a monthly basis at both drinking water stations only.

Recently deposited sediment is collected below the waterline on a monthly basis and tested for gamma spec and, on a semi-annual basis, is tested for gross alpha and beta.

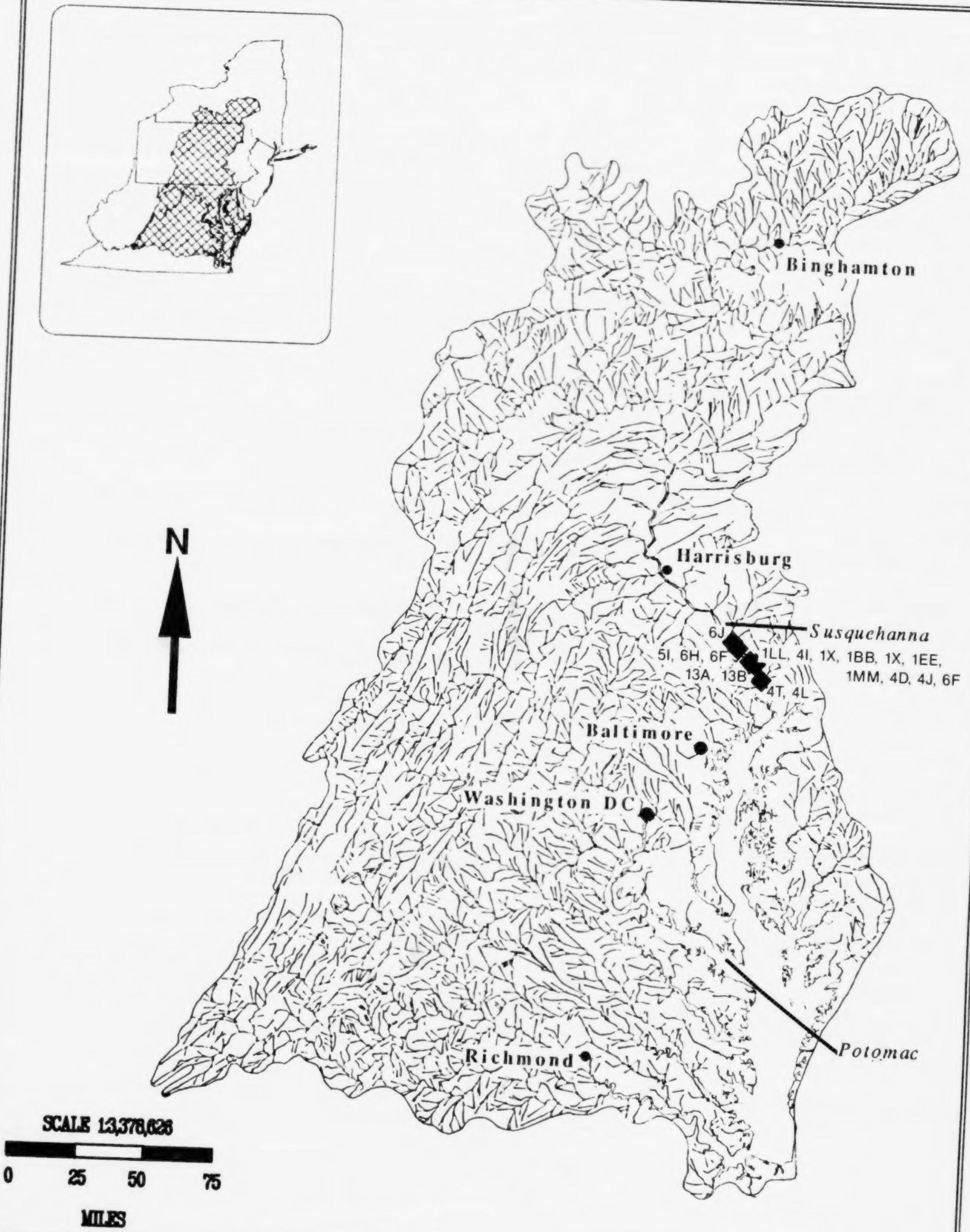
Finfish from two groups representing predator and bottom feeder species are collected by electrofishing and other gear on a quarterly basis and tested for Sr-89 and 90 and gamma spec.

PROGRAM INTEGRATION: N/A

PHILADELPHIA ELECTRIC COMPANY PEACH BOTTOM RADIOLOGICAL MONITORING STATIONS

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
13A	39 45 13	76 13 49	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	SURFACE WATER - CHESTER WATER I
13B	39 45 10	76 13 47	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	SURFACE WATER - CHESTER WATER I
1BB	39 45 08	76 15 45	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	SEDIMENT - PB DISCHARGE CANAL
1EE	39 45 05	76 15 42	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	FINFISH - PB DISCHARGE CANAL
1LL	39 45 39	76 15 57	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	SURFACE WATER - UNITS 2 & 3 INT
1MM	39 45 06	76 15 36	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	SURFACE WATER - PB CANAL DISCHA
1X	39 45 26	76 15 48	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	FINFISH - COOLING TOWER POND B1
4D	39 45 03	76 15 33	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	SEDIMENT - CONOWINGO POND
4I	39 45 46	76 16 09	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	FINFISH - CONOWINGO POND TRAP N
4J	39 45 01	76 15 30	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	SEDIMENT - CONOWINGO POND NET T
4L	39 39 31	76 10 28	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	DRINKING WATER - CONOWINGO DAM
4T	39 39 32	76 10 38	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	SEDIMENT - CONOWINGO POND NEAR
5I	39 49 36	76 20 15	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	DRINKING WATER - HOLTWOOD DAM H
6F	39 49 50	76 19 57	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	SEDIMENT - HOLTWOOD DAM/EAST SH
6H	39 49 55	76 20 46	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	FINFISH - HOLTWOOD POND (CONTRO
6J	39 53 24	76 22 02	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	FINFISH - HOLTWOOD POND (CONTRO

PHILADELPHIA ELECTRIC COMPANY PEACH BOTTOM RADIOLOGICAL MONITORING STATIONS



MARYLAND RADIONUCLIDE MONITORING PROGRAM

PROGRAM DESCRIPTION: Environmental levels of radionuclides attributed to natural sources, atmospheric nuclear weapons testing and nuclear power plants are monitored to quantify their temporal and spatial distribution in an effort to assess the radiological impact of nuclear power plants on Maryland ecosystems.

PROGRAM OBJECTIVES: To determine the environmental and human health impact of releases of radioactivity by the Calvert Cliffs Nuclear Power Plant (CCNPP), the Peach Bottom Atomic Power Station (PBAPS) and the Three Mile Island Nuclear Station (TMINS). To determine the transport and fate of plant-related radionuclides (and by analogy, of stable heavy metals) in the Susquehanna River/Chesapeake Bay. Determine radionuclide uptake and elimination rates, and concentration factors for riverine/estuarine organisms.

DATE INITIATED: Most monitoring program elements in the vicinity of the CCNPP were initiated in 1977, and in the vicinity of PBAPS and TMINS in 1979.

COORDINATING AGENCY:

Maryland Department of Natural Resources
Tidewater Administration
Power Plant and Environmental Review, Radioecology Division
Tawes State Office Building, B-3
Annapolis, Maryland 21401

FUNDING AGENCY:

Maryland Department of Natural Resources

PARTICIPATING AGENCIES:

Maryland Department of Natural Resources (MDDNR)
Versar, Inc. ESM Operations
University of Maryland Chesapeake Biological Laboratory (CBL)
Environmental Consultants Inc. (ECI)
Academy of Natural Sciences of Philadelphia ,
  Benedict Estuarine Research Laboratory (BERL)
Oak Ridge National Laboratory(ORNL)

INVESTIGATORS:

Project Administrator	Richard McLean	MDDNR
Radio Analysis & Data Management	Stephen Domotor	MDDNR

PARAMETERS:

Species
Natural gamma-emitting radionuclides
Man-made gamma-emitting radionuclides
Radiostrontium
Seston
Sediment particle size

STATIONS: There are three stations in the vicinity of Calvert Cliffs Nuclear Power Plant that are routinely monitored for biota, with 28 and 24 stations respectively for routine and intensive grid sampling of sediments. In the upper Chesapeake Bay and the Susquehanna River, six stations are routinely monitored for biota and 37 stations are monitored for sediment.

SAMPLE COLLECTION: At the Calvert Cliffs Nuclear Power Plant oysters from nine natural bars are collected quarterly; oysters from an artificial tray are collected quarterly; blue crabs (flesh and shell), finfish (whole forage species and flesh, bone and gut of edible species), grass shrimp and algae samples are all collected each spring and fall; routine sediment samples are collected quarterly; and intensive grid sediment samples are collected annually.

At the upper Chesapeake Bay and Susquehanna River stations, finfish samples (whole forage species and flesh and gut of edible species) are collected each spring and fall; mussel (flesh) samples are collected monthly from May through December; crayfish (whole) samples are collected monthly from June through December; submerged aquatic vegetation and sediment samples are collected every spring and fall.

Concentrations of gamma-emmiting radionuclides are determined by non-destructive analysis employing solid-state detectors (GeLi or Ge) coupled to a computer-based pulse height analysis system. Spectral data are archived on hard disk. Radiostrontium determination employs sample destructive chemical separation and beta analysis of the yttrium daughter.

PROGRAM INTEGRATION: Results of monitoring and research projects relevant to each nuclear power plant affecting Maryland are published periodically. Cumulative radiological impact is addressed in a biannually published document. Research results are also submitted to open literature.

MARYLAND RADIONUCLIDE MONITORING STATIONS

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
CCO-1	38 26 20	76 26 37	CB-4	CHESBAY	UPPER CHESAPEAKE BAY	2060001	CALVERT CLIFFS SEDIMENT COLLECT
CCO-2	38 26 40	76 26 15	CB-4	CHESBAY	UPPER CHESAPEAKE BAY	2060001	CALVERT CLIFFS SEDIMENT COLLECT
CCO-3	38 26 51	76 25 29	CB-4	CHESBAY	UPPER CHESAPEAKE BAY	2060001	CALVERT CLIFFS SEDIMENT COLLECT
CCO-4	38 26 57	76 24 27	CB-4	CHESBAY	UPPER CHESAPEAKE BAY	2060001	CALVERT CLIFFS SEDIMENT COLLECT
CP-1	38 22 44	76 22 49	CB-5	CHESBAY	UPPER CHESAPEAKE BAY	2060001	CALVERT CLIFFS SEDIMENT COLLECT
CP-2	38 22 42	76 22 08	CB-5	CHESBAY	UPPER CHESAPEAKE BAY	2060001	CALVERT CLIFFS SEDIMENT COLLECT
CP-3	38 22 47	76 21 27	CB-5	CHESBAY	UPPER CHESAPEAKE BAY	2060001	CALVERT CLIFFS SEDIMENT COLLECT
CP-4	38 22 45	76 20 38	CB-5	CHESBAY	UPPER CHESAPEAKE BAY	2060001	CALVERT CLIFFS SEDIMENT COLLECT
DP-1	38 19 42	76 21 55	CB-5	CHESBAY	UPPER CHESAPEAKE BAY	2060001	CALVERT CLIFFS SEDIMENT COLLECT
DP-2	38 19 47	76 23 54	CB-5	CHESBAY	UPPER CHESAPEAKE BAY	2060001	CALVERT CLIFFS SEDIMENT COLLECT
FP-1	38 26 57	76 27 05	CB-4	CHESBAY	UPPER CHESAPEAKE BAY	2060001	CALVERT CLIFFS SEDIMENT COLLECT
FP-2	38 27 08	76 26 24	CB-4	CHESBAY	UPPER CHESAPEAKE BAY	2060001	CALVERT CLIFFS SEDIMENT COLLECT
FP-3	38 27 20	76 25 22	CB-4	CHESBAY	UPPER CHESAPEAKE BAY	2060001	CALVERT CLIFFS SEDIMENT COLLECT
FP-4	38 27 30	76 24 25	CB-4	CHESBAY	UPPER CHESAPEAKE BAY	2060001	CALVERT CLIFFS SEDIMENT COLLECT
LCP-1	38 21 27	76 22 37	CB-5	CHESBAY	UPPER CHESAPEAKE BAY	2060001	CALVERT CLIFFS SEDIMENT COLLECT
LCP-2	38 21 19	76 21 51	CB-5	CHESBAY	UPPER CHESAPEAKE BAY	2060001	CALVERT CLIFFS SEDIMENT COLLECT
LNG-1	38 23 37	76 23 10	CB-4	CHESBAY	UPPER CHESAPEAKE BAY	2060001	CALVERT CLIFFS SEDIMENT COLLECT
LNG-2	38 23 41	76 22 24	CB-4	CHESBAY	UPPER CHESAPEAKE BAY	2060001	CALVERT CLIFFS SEDIMENT COLLECT
LNG-3	38 23 46	76 21 33	CB-4	CHESBAY	UPPER CHESAPEAKE BAY	2060001	CALVERT CLIFFS SEDIMENT COLLECT
LNG-4	38 23 49	76 20 57	CB-4	CHESBAY	UPPER CHESAPEAKE BAY	2060001	CALVERT CLIFFS SEDIMENT COLLECT
RP-1	38 24 12	76 23 53	CB-4	CHESBAY	UPPER CHESAPEAKE BAY	2060001	CALVERT CLIFFS SEDIMENT COLLECT
RP-2	38 24 30	76 22 40	CB-4	CHESBAY	UPPER CHESAPEAKE BAY	2060001	CALVERT CLIFFS SEDIMENT COLLECT
RP-3	38 24 32	76 21 45	CB-4	CHESBAY	UPPER CHESAPEAKE BAY	2060001	CALVERT CLIFFS SEDIMENT COLLECT
RP-4	38 24 48	76 20 58	CB-4	CHESBAY	UPPER CHESAPEAKE BAY	2060001	CALVERT CLIFFS SEDIMENT COLLECT
WS-1	38 28 14	76 28 16	CB-4	CHESBAY	UPPER CHESAPEAKE BAY	2060001	CALVERT CLIFFS SEDIMENT COLLECT
WS-2	38 28 27	76 27 35	CB-4	CHESBAY	UPPER CHESAPEAKE BAY	2060001	CALVERT CLIFFS SEDIMENT COLLECT
WS-3	38 28 49	76 26 27	CB-4	CHESBAY	UPPER CHESAPEAKE BAY	2060001	CALVERT CLIFFS SEDIMENT COLLECT
WS-4	38 28 50	76 25 31	CB-4	CHESBAY	UPPER CHESAPEAKE BAY	2060001	CALVERT CLIFFS SEDIMENT COLLECT

MARYLAND RADIONUCLIDE MONITORING PROGRAM - UPPER CHESAPEAKE BAY AND SUSQUEHANNA RIVER SEDIMENT MONITORING STATIONS

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
BROADCREK1	39 41 54	76 14 26	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	CONOWINGO RES, MOUTH OF BROAD C
BROADCREK2	39 41 53	76 13 53	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	CONOWINGO RES, CENTER OF BROAD
BROADCREK3	39 41 51	76 13 12	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	CONOWINGO RES, EAST SIDE OF BRO
COLDCABIN1	39 46 37	76 17 03	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	CONOWINGO RES, WEST SIDE
COLDCABIN2	39 46 50	76 16 42	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	CONOWINGO RES, CENTER
COLDCABIN3	39 47 08	76 16 19	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	CONOWINGO RES, EAST SIDE
CONODAM 1	39 39 06	76 10 18	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	CONOWINGO RES, 100 YDS FROM DAM
CONODAM 2	39 39 19	76 10 09	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	CONOWINGO RES, 100 YDS FROM DAM
CONODAM 3	39 39 30	76 09 59	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	CONOWINGO RES, 100 YDS FROM DAM
CONOWCREK1	39 40 34	76 12 42	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	CONOWINGO RES, WEST SIDE OF CON
CONOWCREK2	39 40 35	76 12 19	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	CONOWINGO RES, CENTER AT CONOWI
CONOWCREK3	39 40 41	76 12 03	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	CONOWINGO RES, MOUTH OF CONOWIN
HOLTWOOD	39 50 01	76 20 45	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	CENTER OF HOLTWOOD RES.
LYH 1	39 43 57	76 15 05	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	CONOWINGO RES, WEST SIDE DOWNST
LYH 2	39 43 55	76 14 32	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	CONOWINGO RES, CENTER
LYH 3	39 43 54	76 13 48	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	CONOWINGO RES, EAST SIDE
MTJOHNISL1	39 45 45	76 16 19	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	CONOWINGO RES, WEST SIDE
MTJOHNISL2	39 45 51	76 16 00	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	CONOWINGO RES, CENTER
MTJOHNISL3	39 45 57	76 15 37	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	CONOWINGO RES, WEST SIDE OF ISL
MTJOHNISL4	39 46 05	76 15 17	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	CONOWINGO RES, EAST SIDE OF ISL
PEACHBOTM1	39 44 38	76 15 27	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	CONOWINGO RES, WEST SIDE INTAKE
PEACHBOTM2	39 44 38	76 14 56	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	CONOWINGO RES, CENTER INTAKE AR
PEACHBOTM3	39 44 39	76 14 20	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	CONOWINGO RES, EAST SIDE INTAKE
SF-1	39 33 14	76 05 01	BFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	SUSQUEHANNA FLATS, RIVER MOUTH
SF-2	39 32 22	76 04 13	CB-1	CHESBAY	UPPER CHESAPEAKE BAY	2060001	SUSQUEHANNA FLATS, RIVER MOUTH
SF-3	39 31 33	76 04 14	CB-1	CHESBAY	UPPER CHESAPEAKE BAY	2060001	SUSQUEHANNA FLATS, RIVER MOUTH
SF-4	39 30 44	76 04 13	CB-1	CHESBAY	UPPER CHESAPEAKE BAY	2060001	SUSQUEHANNA FLATS, RIVER MOUTH
SF-5	39 31 27	76 05 21	CB-1	CHESBAY	UPPER CHESAPEAKE BAY	2060001	SUSQUEHANNA FLATS, "BATTERY"
SF-6	39 29 43	76 05 28	CB-1	CHESBAY	UPPER CHESAPEAKE BAY	2060001	SUSQUEHANNA FLATS, BUOY 6
SF-7	39 28 47	76 04 25	CB-1	CHESBAY	UPPER CHESAPEAKE BAY	2060001	SUSQUEHANNA FLATS, BUOY 7
SF-8	39 27 35	76 03 19	CB-1	CHESBAY	UPPER CHESAPEAKE BAY	2060001	SUSQUEHANNA FLATS, BUOY 8
SF-9	39 26 44	76 03 02	CB-2	CHESBAY	UPPER CHESAPEAKE BAY	2060001	END OF SUSQUEHANNA FLATS, BUOY
UB-10	39 24 34	76 02 34	CB-2	CHESBAY	UPPER CHESAPEAKE BAY	2060001	TURKEY POINT
UB-11	39 22 55	76 06 37	CB-2	CHESBAY	UPPER CHESAPEAKE BAY	2060001	ABOVE GROVE POINT
UB-11A	39 21 49	76 07 56	CB-2	CHESBAY	UPPER CHESAPEAKE BAY	2060001	SASSAFRAS RIVER MOUTH
UB-12	39 19 18	76 11 35	CB-2	CHESBAY	UPPER CHESAPEAKE BAY	2060001	WORTON POINT
UB-13	39 16 42	76 13 01	CB-2	CHESBAY	UPPER CHESAPEAKE BAY	2060001	BAY AT FAIRLEE CREEK
UB-14	39 15 43	76 12 33	CB-2	CHESBAY	UPPER CHESAPEAKE BAY	2060001	FAIRLEE CREEK

MARYLAND RADIONUCLIDE MONITORING PROGRAM - CCNPP INTENSIVE GRID MONITORING STATIONS

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
1	38 26 54	76 26 31	CB-4	CHESBAY	UPPER CHESAPEAKE BAY	2060001	CALVERT CLIFFS SEDIMENT COLLECT
10	38 27 22	76 25 36	CB-4	CHESBAY	UPPER CHESAPEAKE BAY	2060001	CALVERT CLIFFS SEDIMENT COLLECT
11	38 26 52	76 24 54	CB-4	CHESBAY	UPPER CHESAPEAKE BAY	2060001	CALVERT CLIFFS SEDIMENT COLLECT
12	38 26 23	76 24 58	CB-4	CHESBAY	UPPER CHESAPEAKE BAY	2060001	CALVERT CLIFFS SEDIMENT COLLECT
13	38 25 49	76 25 07	CB-4	CHESBAY	UPPER CHESAPEAKE BAY	2060001	CALVERT CLIFFS SEDIMENT COLLECT
14	38 27 46	76 27 21	CB-4	CHESBAY	UPPER CHESAPEAKE BAY	2060001	CALVERT CLIFFS SEDIMENT COLLECT
15	38 27 56	76 26 45	CB-4	CHESBAY	UPPER CHESAPEAKE BAY	2060001	CALVERT CLIFFS SEDIMENT COLLECT
16	38 27 51	76 25 18	CB-4	CHESBAY	UPPER CHESAPEAKE BAY	2060001	CALVERT CLIFFS SEDIMENT COLLECT
17	38 26 57	76 24 13	CB-4	CHESBAY	UPPER CHESAPEAKE BAY	2060001	CALVERT CLIFFS SEDIMENT COLLECT
18	38 25 41	76 24 28	CB-4	CHESBAY	UPPER CHESAPEAKE BAY	2060001	CALVERT CLIFFS SEDIMENT COLLECT
19	38 25 08	76 24 53	CB-4	CHESBAY	UPPER CHESAPEAKE BAY	2060001	CALVERT CLIFFS SEDIMENT COLLECT
2	38 26 54	76 26 17	CB-4	CHESBAY	UPPER CHESAPEAKE BAY	2060001	CALVERT CLIFFS SEDIMENT COLLECT
20	38 28 25	76 27 07	CB-4	CHESBAY	UPPER CHESAPEAKE BAY	2060001	CALVERT CLIFFS SEDIMENT COLLECT
21	38 28 24	76 25 54	CB-4	CHESBAY	UPPER CHESAPEAKE BAY	2060001	CALVERT CLIFFS SEDIMENT COLLECT
22	38 27 59	76 24 05	CB-4	CHESBAY	UPPER CHESAPEAKE BAY	2060001	CALVERT CLIFFS SEDIMENT COLLECT
23	38 26 20	76 23 36	CB-4	CHESBAY	UPPER CHESAPEAKE BAY	2060001	CALVERT CLIFFS SEDIMENT COLLECT
24	38 24 57	76 24 03	CB-4	CHESBAY	UPPER CHESAPEAKE BAY	2060001	CALVERT CLIFFS SEDIMENT COLLECT
3	38 26 53	76 25 53	CB-4	CHESBAY	UPPER CHESAPEAKE BAY	2060001	CALVERT CLIFFS SEDIMENT COLLECT
4	38 26 46	76 25 41	CB-4	CHESBAY	UPPER CHESAPEAKE BAY	2060001	CALVERT CLIFFS SEDIMENT COLLECT
5	38 26 32	76 25 35	CB-4	CHESBAY	UPPER CHESAPEAKE BAY	2060001	CALVERT CLIFFS SEDIMENT COLLECT
6	38 26 10	76 25 40	CB-4	CHESBAY	UPPER CHESAPEAKE BAY	2060001	CALVERT CLIFFS SEDIMENT COLLECT
7	38 25 55	76 25 55	CB-4	CHESBAY	UPPER CHESAPEAKE BAY	2060001	CALVERT CLIFFS SEDIMENT COLLECT
8	38 27 18	76 26 39	CB-4	CHESBAY	UPPER CHESAPEAKE BAY	2060001	CALVERT CLIFFS SEDIMENT COLLECT
9	38 27 24	76 26 04	CB-4	CHESBAY	UPPER CHESAPEAKE BAY	2060001	CALVERT CLIFFS SEDIMENT COLLECT

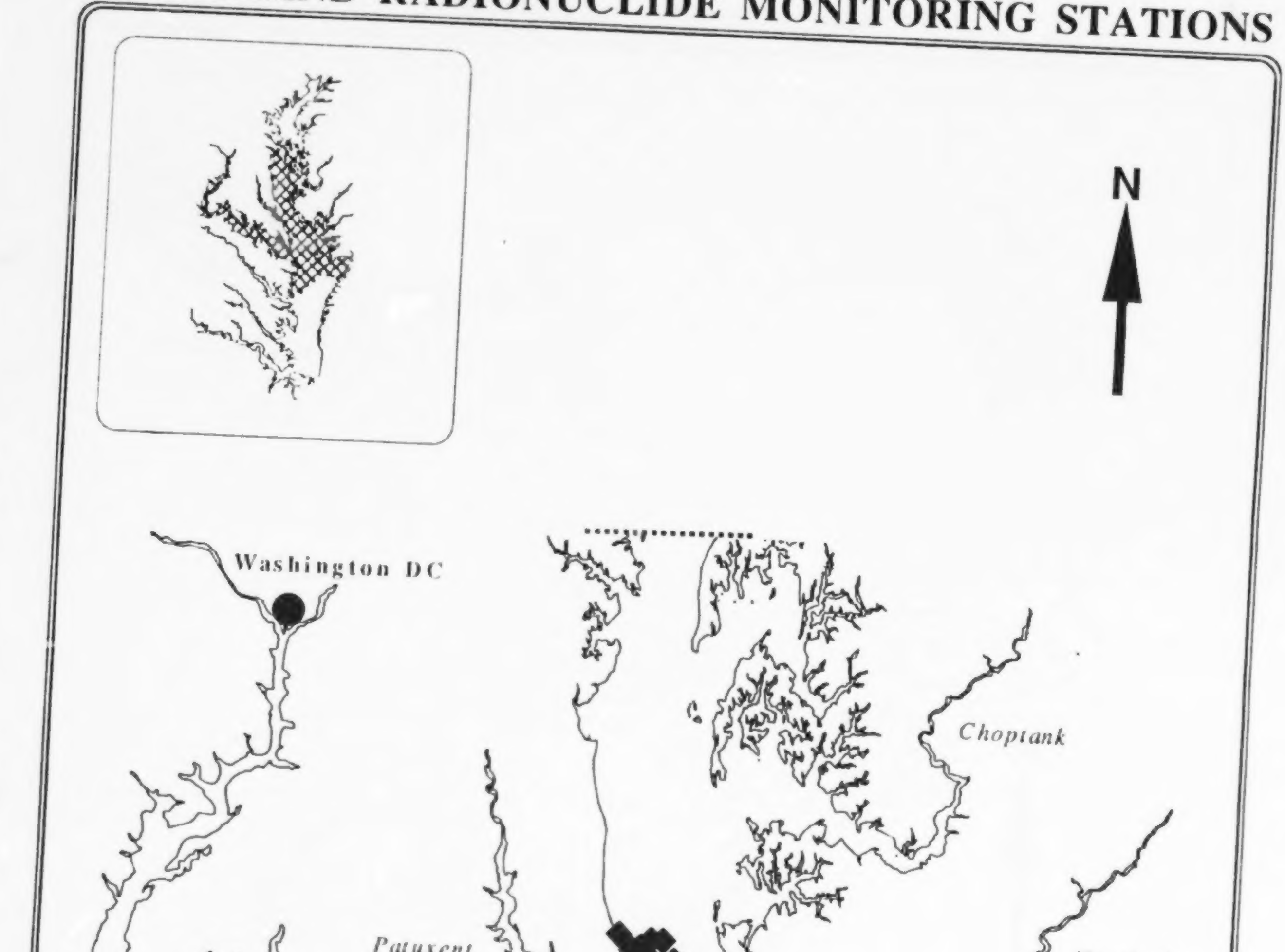
MARYLAND RADIONUCLIDE MONITORING PROGRAM - CCNPP BIOTA COLLECTION STATIONS

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
CCNPP	38 26 26	76 25 18	CB-4	CHESBAY	UPPER CHESAPEAKE BAY	2060001	CALVERT CLIFFS NUCLEAR POW.PLAN
KENB	38 29 17	76 29 32	CB-4	CHESBAY	UPPER CHESAPEAKE BAY	2060001	CALVERT CLIFFS KENWOOD BEACH/BI
ROCKYP	38 24 18	76 24 29	CB-4	CHESBAY	UPPER CHESAPEAKE BAY	2060001	CALVERT CLIFFS ROCKY POINT/BIOT

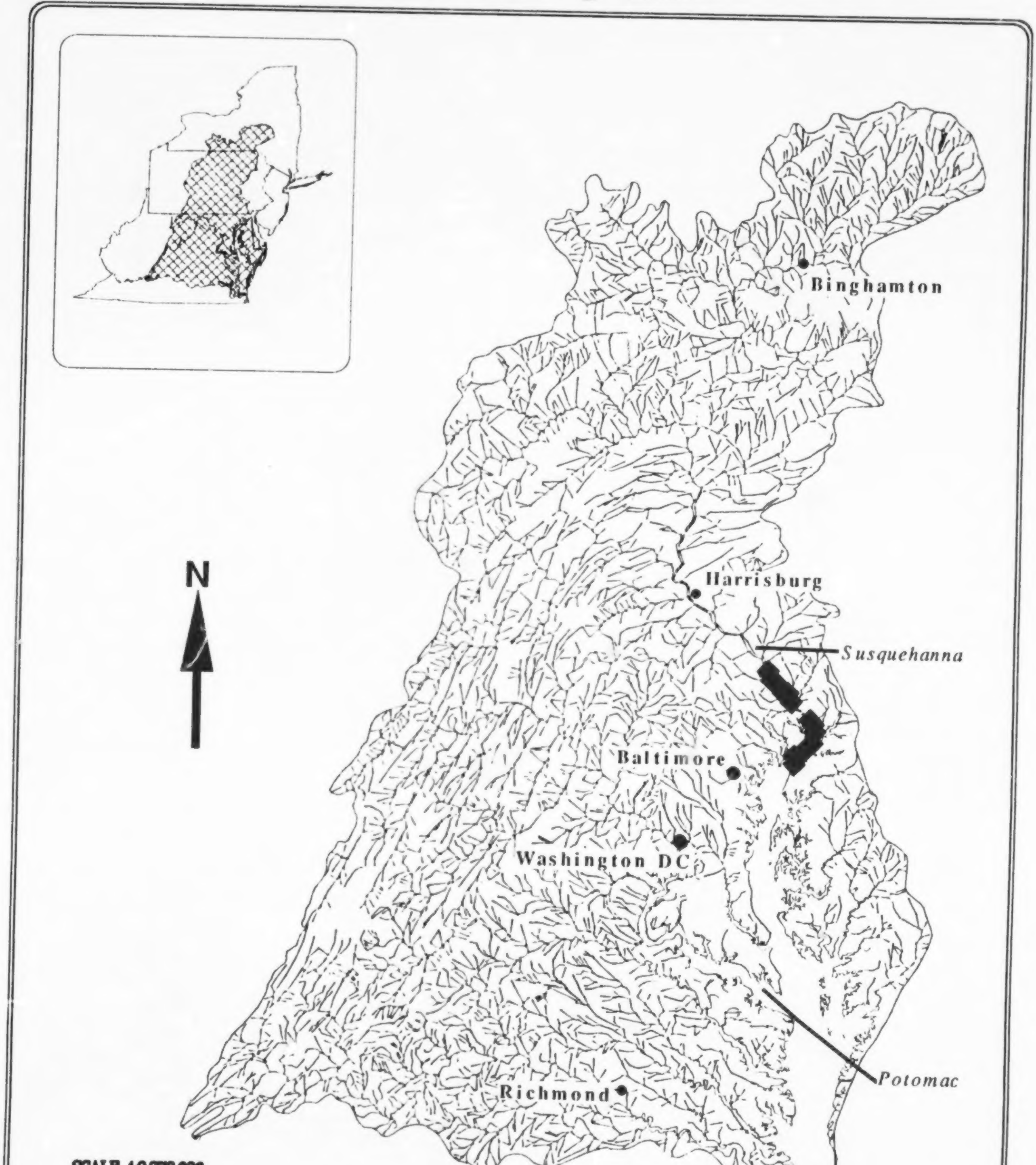
MARYLAND RADIONUCLIDE MONITORING PROGRAM - UPPER CHESAPEAKE BAY AND SUSQUEHANNA RIVER BIOTA COLLECTION STATIONS

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
CONODAM1	39 38 43	76 09 49	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	CONOWINGO DAM TAILRACE
CONODAM2	39 36 23	76 07 47	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	SUSQUEHANNA RIVER 1 MILE BELOW
FAIRCRK	39 15 22	76 12 24	CB-2	CHESBAY	UPPER CHESAPEAKE BAY	2060001	FAIRLEE CREEK
HOLTRES	39 50 23	76 21 00	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	CENTER HOLTWOOD RESERVOIR
LYHBIO	39 44 01	76 13 58	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	BELOW PEACH BOTTOM DISCHARGE CO
SFBIO	39 30 44	76 03 40	CB-1	CHESBAY	UPPER CHESAPEAKE BAY	2060001	SUSQUEHANNA FLATS

MARYLAND RADIONUCLIDE MONITORING STATIONS

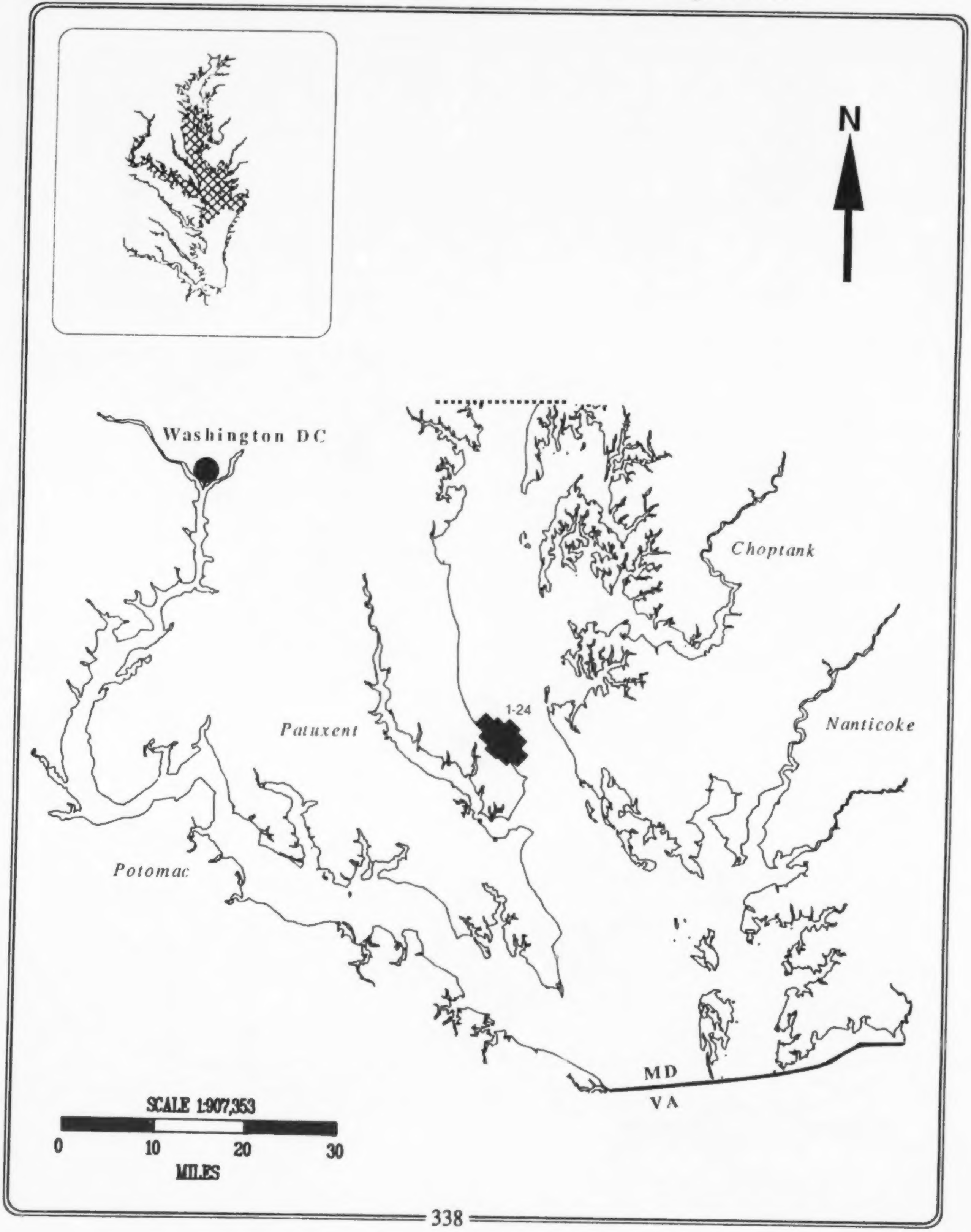


MARYLAND RADIONUCLIDE MONITORING PROGRAM
Upper Chesapeake Bay & Susquehanna River
Sediment Monitoring Stations



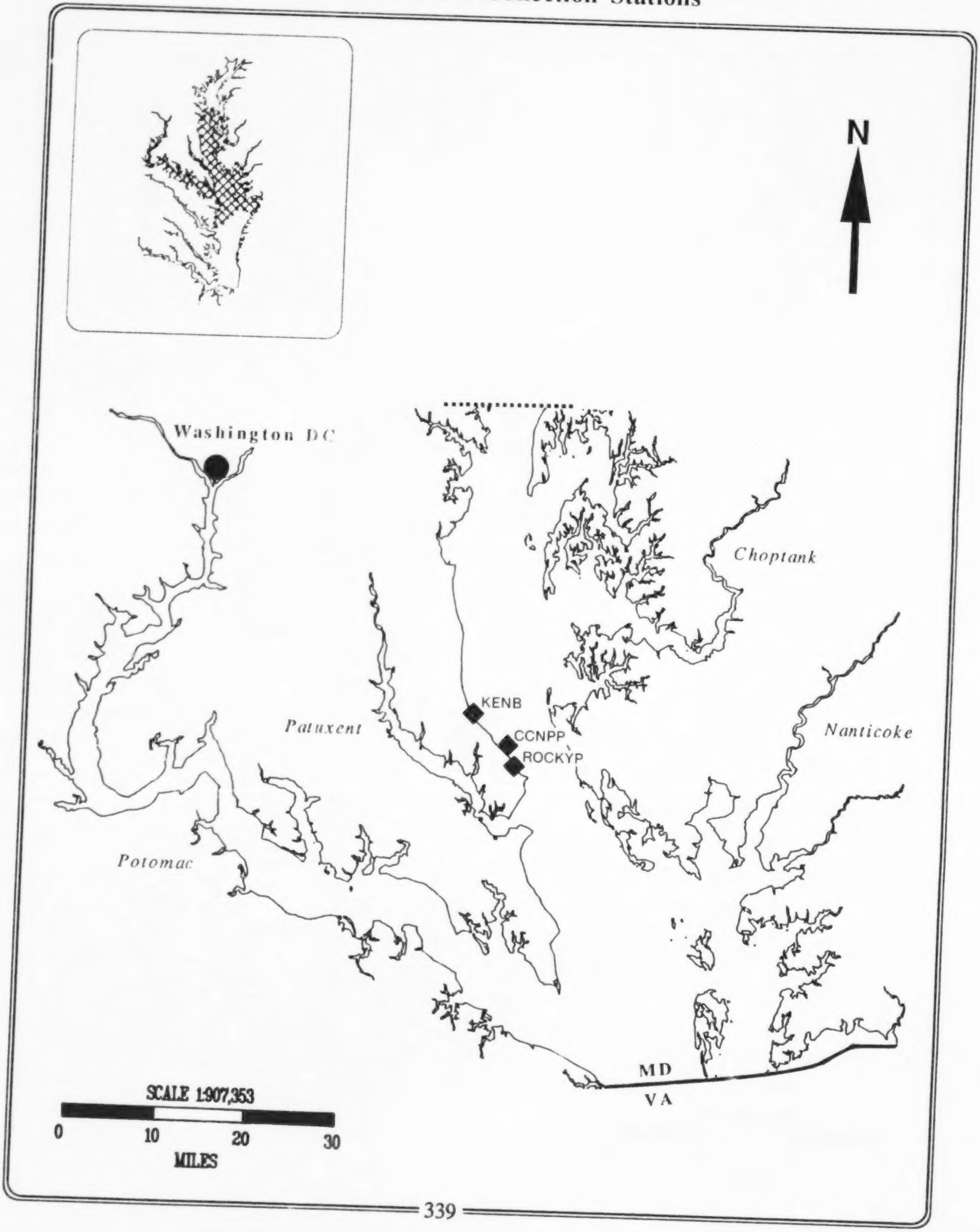
MARYLAND RADIONUCLIDE MONITORING PROGRAM

CCNP Intensive Grid Sediment Monitoring Stations



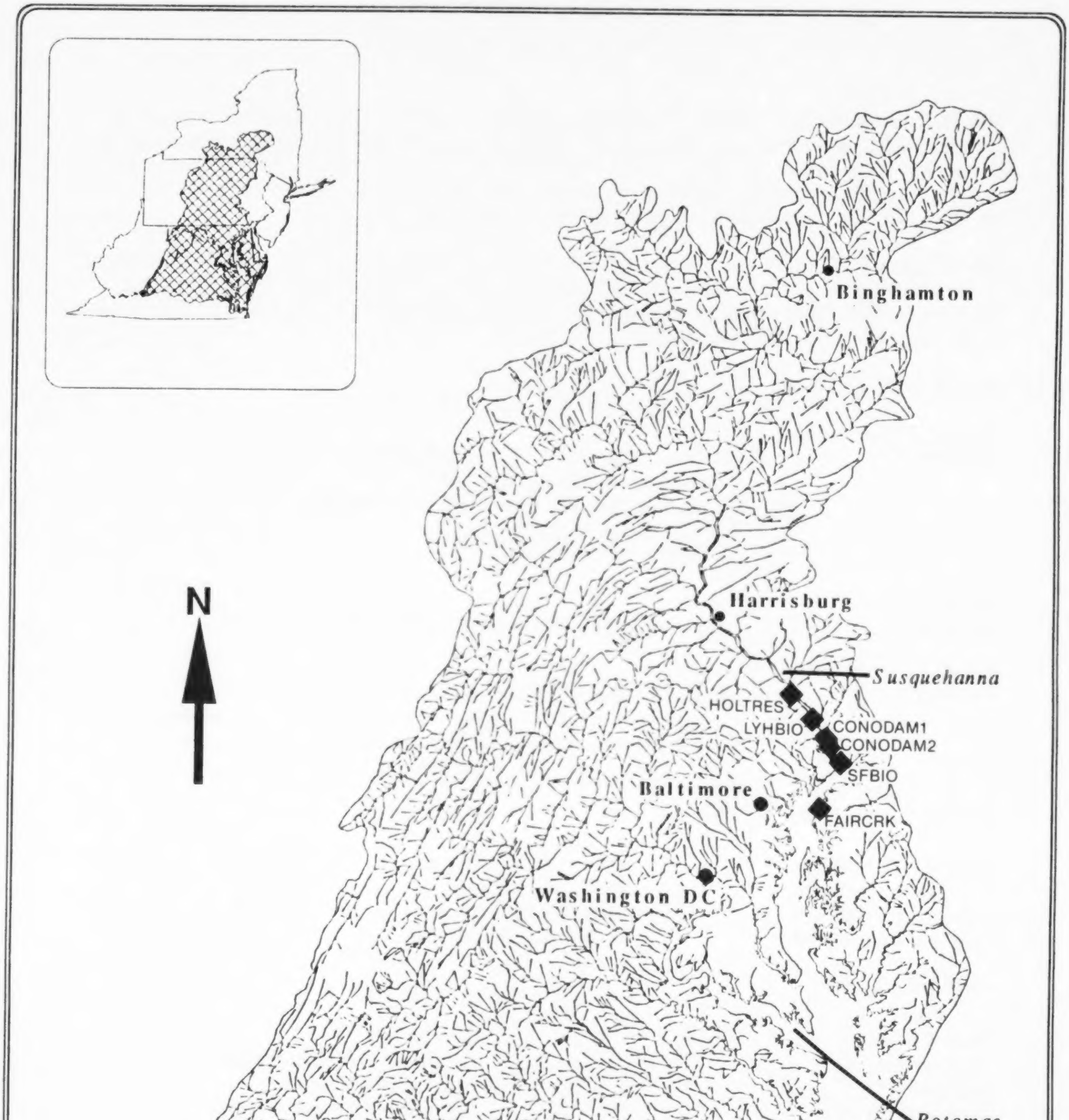
MARYLAND RADIONUCLIDE MONITORING PROGRAM

CCNP Biota Collection Stations



MARYLAND RADIONUCLIDE MONITORING PROGRAM

Upper Chesapeake Bay & Susquehanna River
Biota Collection Stations



MARYLAND CHESAPEAKE BAY WATER QUALITY MONITORING PROGRAM: ECOSYSTEM PROCESSES COMPONENT - VERTICAL FLUX

PROGRAM DESCRIPTION: The Maryland Chesapeake Bay Water Quality Monitoring Program: Ecosystem Processes Component - Vertical Flux (VFX) measures the vertical rate of deposition of organic particulates to deep waters and the sediment surface. Measurements for vertical flux are made at one station on an almost continuous basis in the summer with lower frequency in the spring and fall and occasionally in the winter.

PROGRAM OBJECTIVE: To characterize the present state of the Bay, and determine long-term trends relative to the vertical rate of deposition of organic particulates. To integrate this information with other elements of Maryland's monitoring program to gain a better understanding of the processes affecting water quality.

DATE INITIATED: July 1984

COORDINATING AGENCY:

Maryland Department of the Environment
Water Management Administration
Chesapeake Bay and Special Projects Division
2500 Broening Highway
Baltimore, Maryland 21224

FUNDING AGENCY: Maryland Department of the Environment

PARTICIPATING AGENCIES:

Maryland Department of the Environment (MDE)
University of Maryland - Chesapeake Biological Laboratories (CBL)
University of Maryland - Horn Point Environmental Laboratories (HPEL)

INVESTIGATORS:

Program Coordinator	Robert Magnien	MDE
Principal Investigator	Walter R. Boynton	CBL
Principal Investigator	Jonathon H. Garber	CBL
Principal Investigator	W. Michael Kemp	HPEL

PARAMETERS:

Water Column:
Temperature
Salinity
Dissolved Oxygen
Particulate Nitrogen
Particulate Phosphorus
Particulate Carbon
Chlorophyll *a*
Seston

Surficial Sediment Sample:
Particulate Nitrogen
Particualte Carbon
Particulate Phosphorus
Chlorophyll *a*
Particulates (algal species, zooplankton fecal pellets etc.)

VFX:
Particulate Nitrogen
Particulate Carbon
Particulate Phosphorus
Chlorophyll *a*
Seston
Particulates (algal species, zooplankton fecal pellets etc.)

STATIONS: There is one station located in the Maryland mainstem of the Chesapeake Bay, in the central deep trough.

SAMPLE COLLECTION: Measurements for vertical flux (VFX) are made on an almost continuous basis in the summer (July and August) with lower frequency in the spring and fall, and occasional sampling in the winter.

At each station, water column profiles of temperature, salinity and oxygen are obtained at 2 meter intervals from the surface to the bottom to characterize general features of the water column. Water samples are collected and analyzed at 5 discrete depths using a submersible pump system .

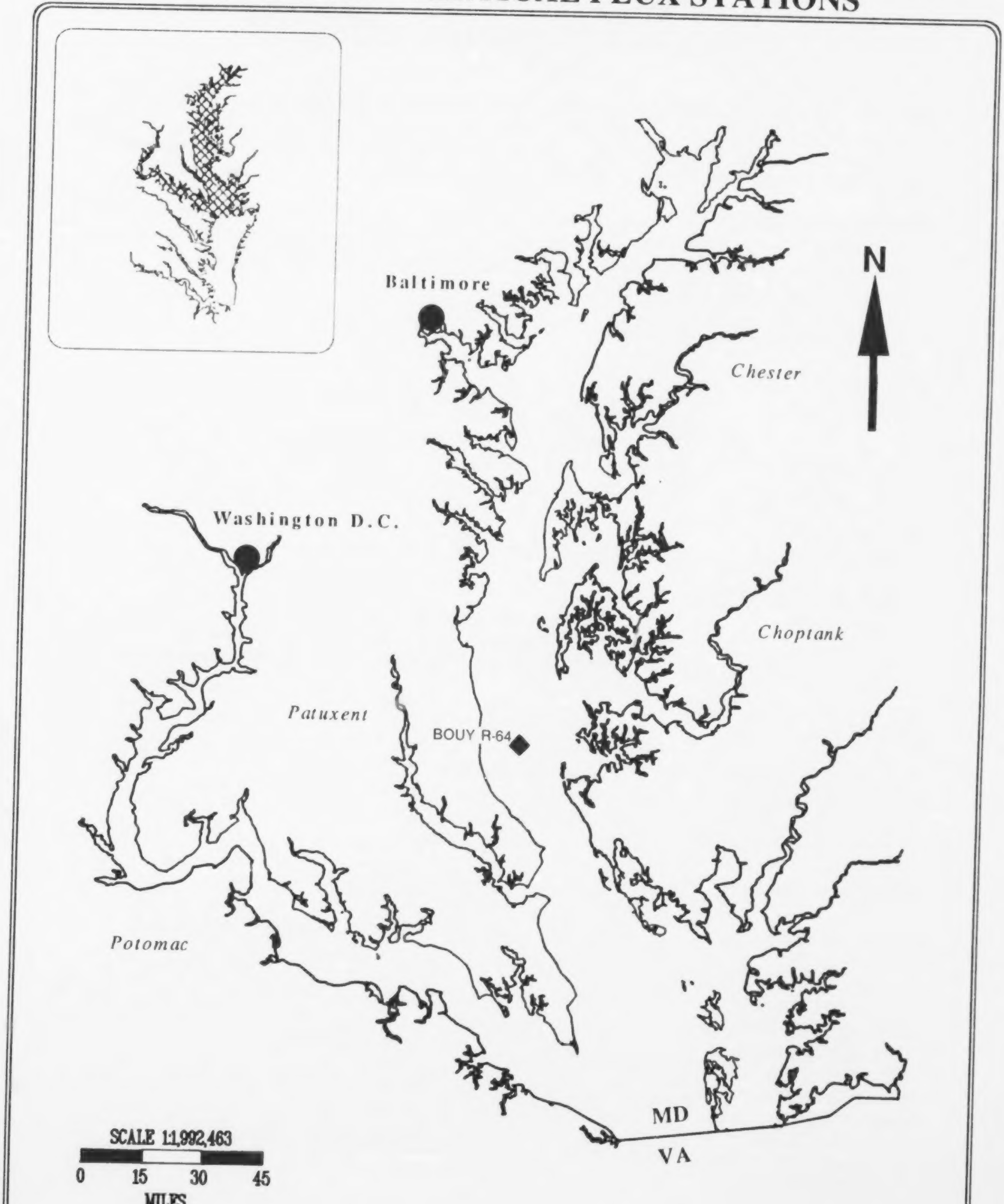
A surficial sediment sample is obtained at each station using either a Van Veen grab or the Bouma box corer. Samples are analyzed and subsamples are examined to determine the composition of surficial sediment particulates (algal species, zooplankton fecal pellets etc.). Collecting arrays, maintained in a vertical position through the water column by a subsurface buoy, are attached at approximately 5, 9 and 14 meters beneath the surface. The sediment trap string is routinely deployed and retrieved, with normal sampling periods lasting 1-2 weeks. The contents of the collecting cup are removed and aliquots taken for analysis. A 10 ml sample is also preserved and examined to determine characteristics of collected particulate material (algal species, zooplankton fecal pellets etc.).

PROGRAM INTEGRATION: The Sediment Oxygen and Nutrient Exchange and the Vertical Flux studies are both components of Maryland's Chesapeake Bay Water Quality Monitoring Program: Ecosystem Processes Component - Vertical Flux deposition rate measurements (VFX) are coordinated with SONE measurements of the sediment-water exchanges monitored at the end of each intensive VFX deployment period. These results are integrated with other MDE monitoring components of the Maryland Chesapeake Bay Monitoring Progam to provide a more complete understanding of these rate processes.

MARYLAND ECOSYSTEM PROCESSES PROGRAM - VERTICAL FLUX STATIONS

STATION NAME (S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
BOUY R-64	38 33 36	76 25 38	CB-4	CHESBAY	UPPER CHESAPEAKE BAY	2060001	300 YDS NE OF CHANNEL BOUY R-64

MARYLAND CHESAPEAKE BAY WATER QUALITY MONITORING PROGRAM: ECOSYSTEM PROCESSES COMPONENT - VERTICAL FLUX STATIONS



MARYLAND CHESAPEAKE BAY WATER QUALITY MONITORING PROGRAM: ECOSYSTEM PROCESSES COMPONENT - SEDIMENT OXYGEN AND NUTRIENT EXCHANGE

PROGRAM DESCRIPTION: The Maryland Chesapeake Bay Water Quality Monitoring Program: Ecosystem Processes Component - Sediment Oxygen and Nutrient Exchange measures sediment-water nutrient exchanges and oxygen consumption. Measurements for oxygen and nutrient flux are taken at 10 station locations on a quarterly basis.

PROGRAM OBJECTIVE: To characterize the present state of the Bay, and determine long-term trends relative to sediment-water nutrient exchanges and oxygen consumption. To integrate this information with other elements of Maryland's monitoring program to gain a better understanding of the processes affecting water quality.

DATE INITIATED: July 1984

COORDINATING AGENCY:

Maryland Department of the Environment
Water Management Administration
Chesapeake Bay and Special Projects Division
2500 Broening Highway
Baltimore, Maryland 21224

FUNDING AGENCY: Maryland Department of the Environment

PARTICIPATING AGENCIES:

Maryland Department of the Environment (MDE)
University of Maryland - Chesapeake Biological Laboratories (CBL)
University of Maryland - Horn Point Environmental Laboratories (HPEL)

INVESTIGATORS:

Program Coordinator	Robert Magnien	MDE
Principal Investigator	Walter R. Boynton	CBL
Principal Investigator	Jonathon H. Garber	CBL
Principal Investigator	W. Michael Kemp	HPEL

PARAMETERS:

Water Column:
Temperature
Salinity
Dissolved Oxygen
Total Dissolved Nitrogen
Particulate Nitrogen
Nitrate
Nitrite
Ammonium
Particulate Carbon
Dissolved Organic Phosphorus
Particulate Phosphorus
Dissolved Inorganic Phosphorus
Silicious Acid
Chlorophyll *a*
Seston

Sediment Cores:
Nitrate
Nitrite
Ammonium
Dissolved Inorganic Phosphorus
Silicious Acid

Sediment Cores (once a year):
Water content
Nitrate
Nitrite
Particulate Nitrogen
Particulate Phosphorus
Dissolved Inorganic Phosphorus
Particulate Carbon
Silicious Acid
Biogenic Silica

STATIONS: There are 10 station locations for oxygen and nutrient flux (four of them located along the mainstem salinity gradient).

SAMPLE COLLECTION: Measurements for sediment oxygen and nutrient exchange (SONE) are made on a quarterly basis. At each SONE location, temperature, salinity and oxygen are obtained at 2 meter intervals from the surface to the bottom immediately prior to obtaining intact sediment cores for incubation. Near-surface (approximately 1 meter below) and near-bottom (approximately 1 meter above) water samples are also collected using a high volume submersible pump system.

Three intact sediment cores are obtained at each SONE station using a modified Bouma box corer. After deployment and retrieval of the box corer, the plexiglass liner containing the sediment sample is removed and visually inspected for disturbance before being held for further processing. Cores are placed in a darkened water bath of bottom water which is gently circulated to closely approximate in-situ conditions. Oxygen concentrations are recorded every 15 minutes and water samples are extracted from each core every 30 minutes over the 2-5 hour incubation period. As a nutrient sample is extracted for a core, an equal amount of ambient bottom water is added. An additional sample of bottom water is incubated and sampled to serve as a blank. Water samples are filtered, frozen and later analyzed for nutrients. Nutrient and oxygen fluxes are estimated by calculating the mean rate of change in concentration over the incubation period and then converting the volumetric rate to a flux using the volume to area ratio of each core.

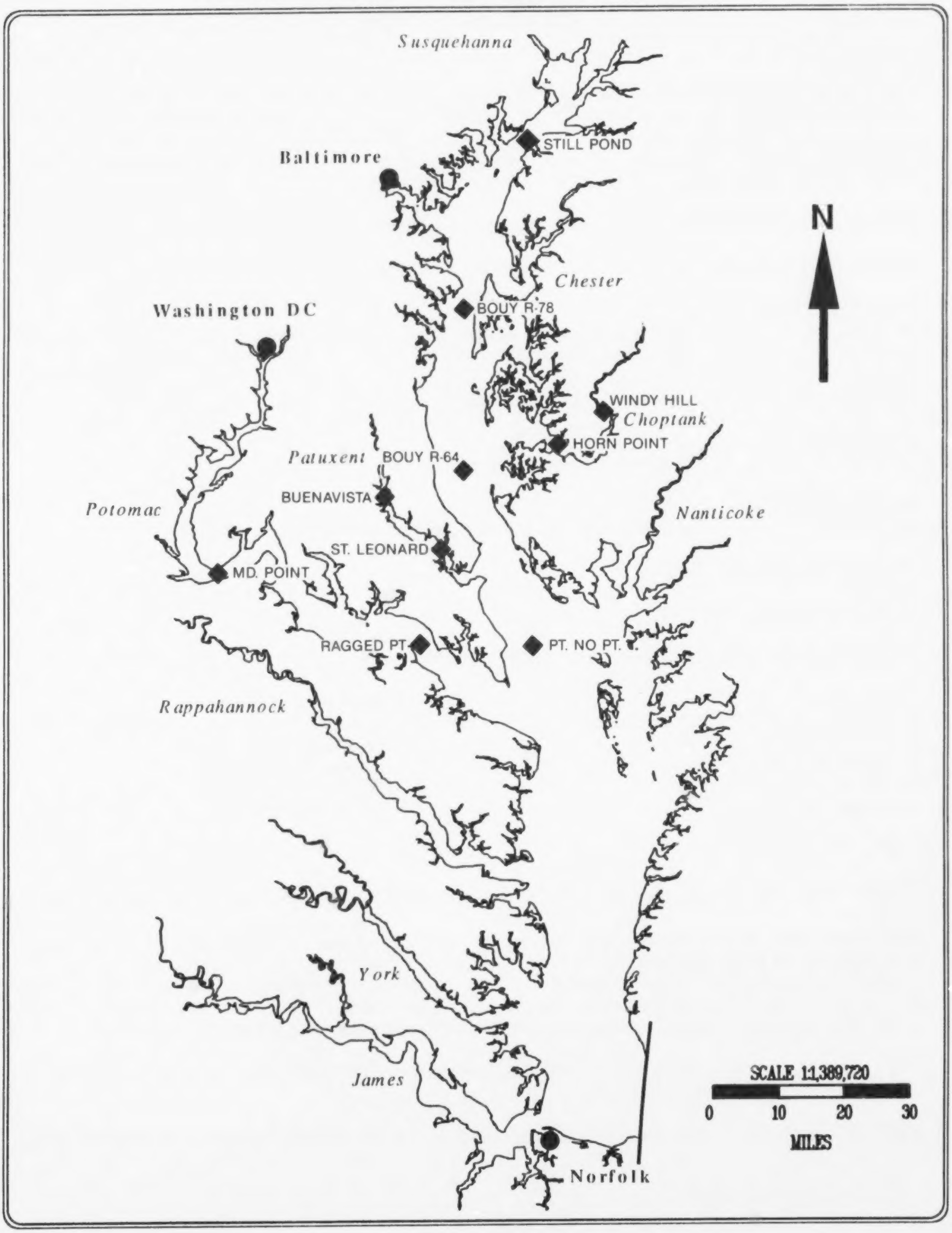
In addition to this, an intact sediment core is obtained and Eh measurements immediately made at 1 cm intervals to a depth of about 10 cm. Once a year in October, sediments are sampled for vertical distribution of both dissolved and particulate nutrient concentrations and water content. Several intact cores are obtained at each station using the Bouma box corer with subcores taken and later sliced at 1 cm intervals to a depth of 10 cm. Samples are then analyzed.

PROGRAM INTEGRATION: The Sediment Oxygen and Nutrient Exchange and the Vertical Flux (VFX) studies are both components of Maryland's Ecosystem Processes Program. Vertical deposition rate measurements are coordinated with SONE measurements in the sediment-water exchanges monitored at the end of each intensive VFX deployment period. These results are integrated with other components of the Maryland Chesapeake Bay Monitoring Program to provide a more complete understanding of these rate processes.

MARYLAND CHESAPEAKE BAY ECOSYSTEM PROCESSES PROGRAM - SONE COMPONENT

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
BOUY R-64	38 33 36	76 25 38	CB-4	CHESBAY	UPPER CHESAPEAKE BAY	2060001	NE OF CHANNEL BOUY R-64
BOUY R-78	38 57 17	76 23 35	CB-4	CHESBAY	UPPER CHESAPEAKE BAY	2060001	NNW OF CHANNEL BOUY "78"
BUENAVISTA	38 30 55	76 39 49	RET-1	PATUXENT	PATUXENT	2060006	N OF RT. 231 BRIDGE AT BENEDICT
HORN POINT	38 37 05	76 07 48	ET-5	EASTERN SHORE	CHOPTANK	2060005	4.0 NAUT MI DOWNSTREAM RT. 50 A
MD. POINT	38 21 23	77 11 31	RET-2	POTOMAC	LOWER POTOMAC	2070011	SE OF BOUY R-18
PT. NO PT.	38 07 59	76 15 06	CB-5	CHESBAY	UPPER CHESAPEAKE BAY	2060001	1.0 NAUT MI. E OF SMITH POINT
RAGGED PT	38 09 45	76 35 35	LE-2	POTOMAC	LOWER POTOMAC	2070011	1.5 NAUT. MI. WNW OF BW "51B"
ST.LEONARD	38 22 44	76 30 05	LE-1	PATUXENT	PATUXENT	2060006	7.5 NAUT. MI UPSTREAM OF MOUTH
STILL POND	39 20 54	76 10 52	CB-2	CHESBAY	UPPER CHESAPEAKE BAY	2060001	W OF CHANNEL MARKER "41"
WINDY HILL	38 41 25	75 58 25	ET-5	EASTERN SHORE	CHOPTANK	2060005	10.0 NAUT MI UPSTREAM OF RT. 50

MARYLAND CHESAPEAKE BAY WATER QUALITY MONITORING PROGRAM: ECOSYSTEM PROCESSES COMPONENT - SONE STATIONS



NEW YORK NOAA NWS CLIMATOLOGICAL DATA NETWORK

PROGRAM DESCRIPTION: The New York NOAA National Weather Service Climatological Data Network is part of national network of climatological (weather) monitoring stations. There are 35 stations in the Chesapeake Bay basin in New York (as of 1986) with at least temperature and precipitation records. One station at Binghamton, New York is a designated Local Climatological Data (LCD) station, which collects additional parameters on a more frequent basis.

PROGRAM OBJECTIVE: To provide a long-term climatological data base.

DATE INITIATED: Earliest 1854 [Varies for each station]

COORDINATING AGENCY:
National Oceanic and Atmospheric Administration
National Climatic Data Center
Federal Building
Asheville, North Carolina 28801

FUNDING AGENCY: National Oceanic and Atmospheric Administration

PARTICIPATING AGENCY: National Oceanic and Atmospheric Administration (NOAA)

INVESTIGATORS: N/A

PARAMETERS:

While parameters vary, they include one or more of the following:

Temperature
Degree Days
Precipitation
Precipitation Type
Wind Speed
Wind Direction
Barometric Pressure
Sunshine
Sky Cover
Weather Type
Evaporation
Soil Temperature

STATIONS: There are 35 stations located in the New York portion of the Susquehanna River basin.

SAMPLE COLLECTION: Frequency of collection varies. Measurements are generally taken on a daily basis with calculations of daily, monthly, and annual maximums, minimums, averages and departures from normal. Totals for precipitation and precipitation types, evaporation and wind movement and number of days above and below maximum and minimum temperatures are also quantified. Seasonal heating-degree days, snowfall and cooling-degree days are also calculated.

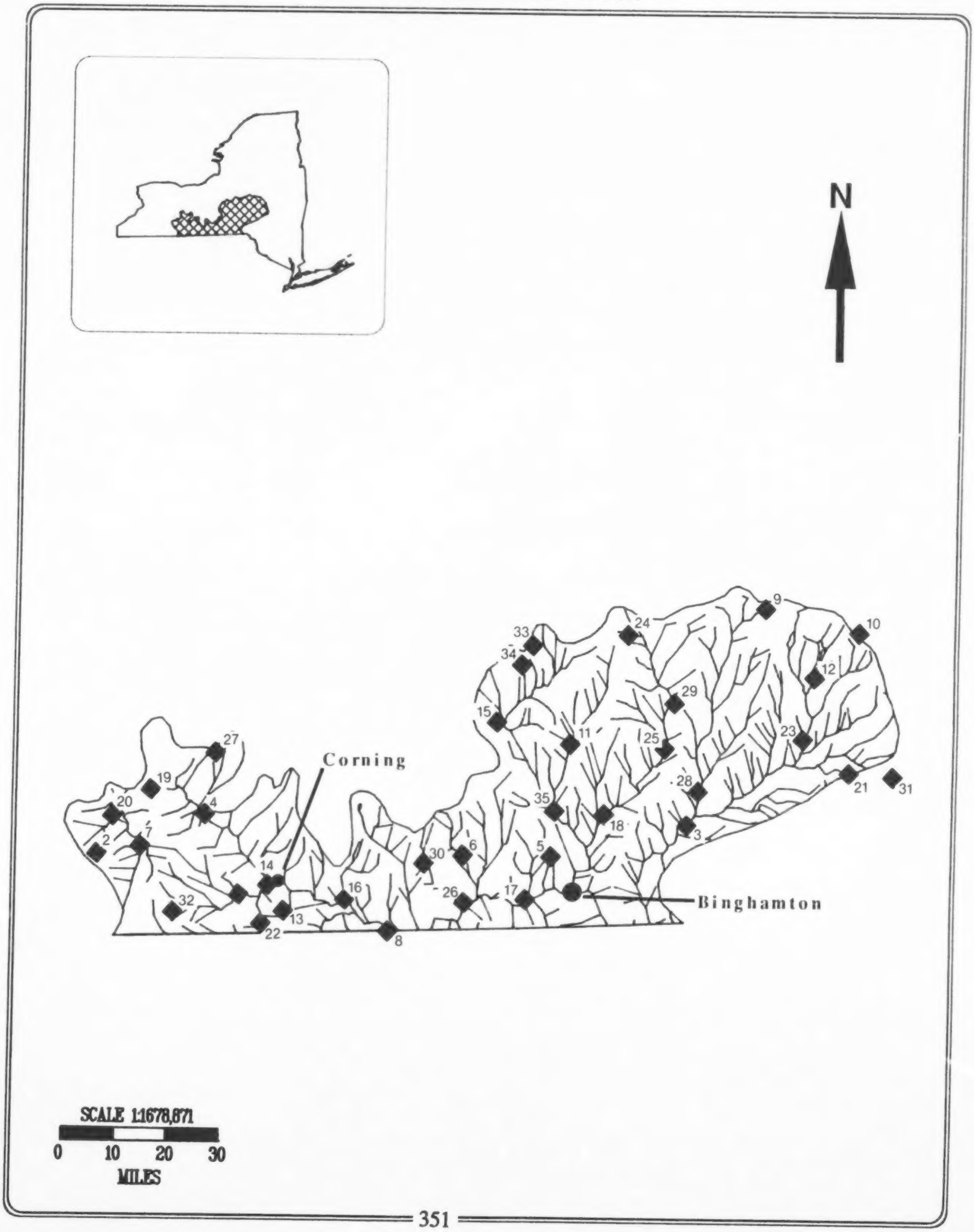
The Local Climatological Data (LCD) station in Binghamton, New York takes hourly measurements,. calculating hourly and 3-hour averages.

PROGRAM INTEGRATION: These stations are part of a national network for climatological data.

NEW YORK NOAA NWS CLIMATOLOGICAL DATA STATIONS

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
1	42 07 00	77 13 00	AFL	SUSQUEHANNA	TIOGA	2050104	ADDISON 1 NNE
10	42 49 00	74 44 00	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA	2050101	CHERRY VALLEY 2 NNE
11	42 32 00	75 54 00	AFL	SUSQUEHANNA	CHENANGO	2050102	CINCINNATUS
12	42 42 00	74 55 00	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA	2050101	COOPERSTOWN
13	42 04 00	77 03 00	AFL	SUSQUEHANNA	CHEMUNG	2050105	CORNING 5 SSW
14	42 09 00	77 06 00	AFL	SUSQUEHANNA	CHEMUNG	2050105	CORNING 3 NW
15	42 36 00	76 11 00	AFL	SUSQUEHANNA	CHENANGO	2050102	CORTALND
16	42 06 00	76 48 00	AFL	SUSQUEHANNA	CHEMUNG	2050105	ELMIRA
17	42 05 00	76 05 00	AFL	SUSQUEHANNA	WEGO-WAPPASENING	2050103	ENDICOTT
18	42 19 00	75 46 00	AFL	SUSQUEHANNA	CHENANGO	2050102	GREENE
19	42 25 00	77 34 00	AFL	SUSQUEHANNA	CHEMUNG	2050105	HASKINVILLE
2	42 15 00	77 47 00	AFL	SUSQUEHANNA	TIOGA	2050104	ALFRED
20	42 21 00	77 42 00	AFL	SUSQUEHANNA	TIOGA	2050104	HORNELL-ALMOND DAM
21	42 25 00	74 48 00	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA	2050101	KORTRIGHT 2
22	42 02 00	77 08 00	AFL	SUSQUEHANNA	TIOGA	2050104	LINDLEY
23	42 31 00	74 58 00	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA	2050101	MARYLAND 6 S
24	42 51 00	75 39 00	AFL	SUSQUEHANNA	CHENANGO	2050102	MORRISVILLE 3 S
25	42 32 00	75 32 00	AFL	SUSQUEHANNA	CHENANGO	2050102	NORWICH
26	42 05 00	76 19 00	AFL	SUSQUEHANNA	WEGO-WAPPASENING	2050103	OWEGO 3 WSW
27	42 32 00	77 18 00	AFL	SUSQUEHANNA	CHEMUNG	2050105	PRATTSDBURG
28	42 23 00	75 24 00	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA	2050101	ROCKDALE
29	42 39 00	75 29 00	AFL	SUSQUEHANNA	CHENANGO	2050102	SHERBURNE
3	42 17 00	75 27 00	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA	2050101	BAINBRIDGE 2 E
30	42 11 00	76 30 00	AFL	SUSQUEHANNA	WEGO-WAPPASENING	2050103	SPENCER
31	42 24 00	74 38 00	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA	2050101	STAMFORD
32	42 04 00	77 29 00	AFL	SUSQUEHANNA	TIOGA	2050104	TROUOPSBURG
33	42 50 00	76 02 00	AFL	SUSQUEHANNA	CHENANGO	2050102	TULLY 4 NE
34	42 46 00	76 05 00	AFL	SUSQUEHANNA	CHENANGO	2050102	TULLY-HEIBERG FOREST
35	42 20 00	75 58 00	AFL	SUSQUEHANNA	CHENANGO	2050102	WHITNEY PT.LAKE
4	42 21 00	77 21 00	AFL	SUSQUEHANNA	CHEMUNG	2050105	BATH
5	42 13 00	75 59 00	AFL	SUSQUEHANNA	WEGO-WAPPASENING	2050103	BINGHAMTON WSO AP
6	42 14 00	76 20 00	AFL	SUSQUEHANNA	WEGO-WAPPASENING	2050103	CANDOR
7	42 16 00	77 37 00	AFL	SUSQUEHANNA	TIOGA	2050104	CANISTEO 1 S
8	42 00 00	76 38 00	AFL	SUSQUEHANNA	CHEMUNG	2050105	CHEMUNG
9	42 55 00	75 07 00	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA	2050101	CHEPACHET

NEW YORK NOAA NWS CLIMATOLOGICAL DATA STATIONS



PENNSYLVANIA NOAA NWS CLIMATOLOGICAL DATA NETWORK

PROGRAM DESCRIPTION: The Pennsylvania NOAA National Weather Service Climatological Data Network is part of a national network of climatological (weather) monitoring stations. There are 85 stations in the Chesapeake Bay basin in Pennsylvania (as of 1986) with at least temperature and precipitation records. There are three stations at Wilkes-Barre, Harrisburg, and Williamsport which are designated Local Climatological Data (LCD) stations where additional parameters are collected on a more frequent basis.

PROGRAM OBJECTIVE: To provide a long-term climatological data base.

DATE INITIATED: Earliest 1877 [Varies for each station]

COORDINATING AGENCY:

National Oceanic and Atmospheric Administration
National Climatic Data Center
Federal Building
Asheville, North Carolina 28801

FUNDING AGENCY: National Oceanic and Atmospheric Administration

PARTICIPATING AGENCIES: National Oceanic and Atmospheric Administration (NOAA)

INVESTIGATORS: N/A

PARAMETERS:

While parameters vary, they include one or more of the following:

- Temperature
- Degree Days
- Precipitation
- Precipitation Type
- Wind Speed
- Wind Direction
- Barometric Pressure
- Sunshine
- Sky Cover
- Weather Type
- Evaporation
- Soil Temperature

STATIONS: There are 85 stations located in the Pennsylvania portion of the Chesapeake Bay basin.

SAMPLE COLLECTION: Frequency of collection varies. Measurements are generally taken on a daily basis with calculations of daily, monthly, and annual maximums, minimums, averages and departures from normal. Totals for precipitation and precipitation types, evaporation and wind movement and number of days above and below maximum and minimum temperatures are also quantified. Seasonal heating-degree days, snowfall and cooling-degree days are calculated as well.

There are three Local Climatological Data (LCD) stations at Wilkes-Barre, Harrisburg, and Williamsport where hourly measurements are taken, and hourly and 3-hourly averages are calculated in addition to the above.

PROGRAM INTEGRATION: These stations are part of a national network for climatological data.

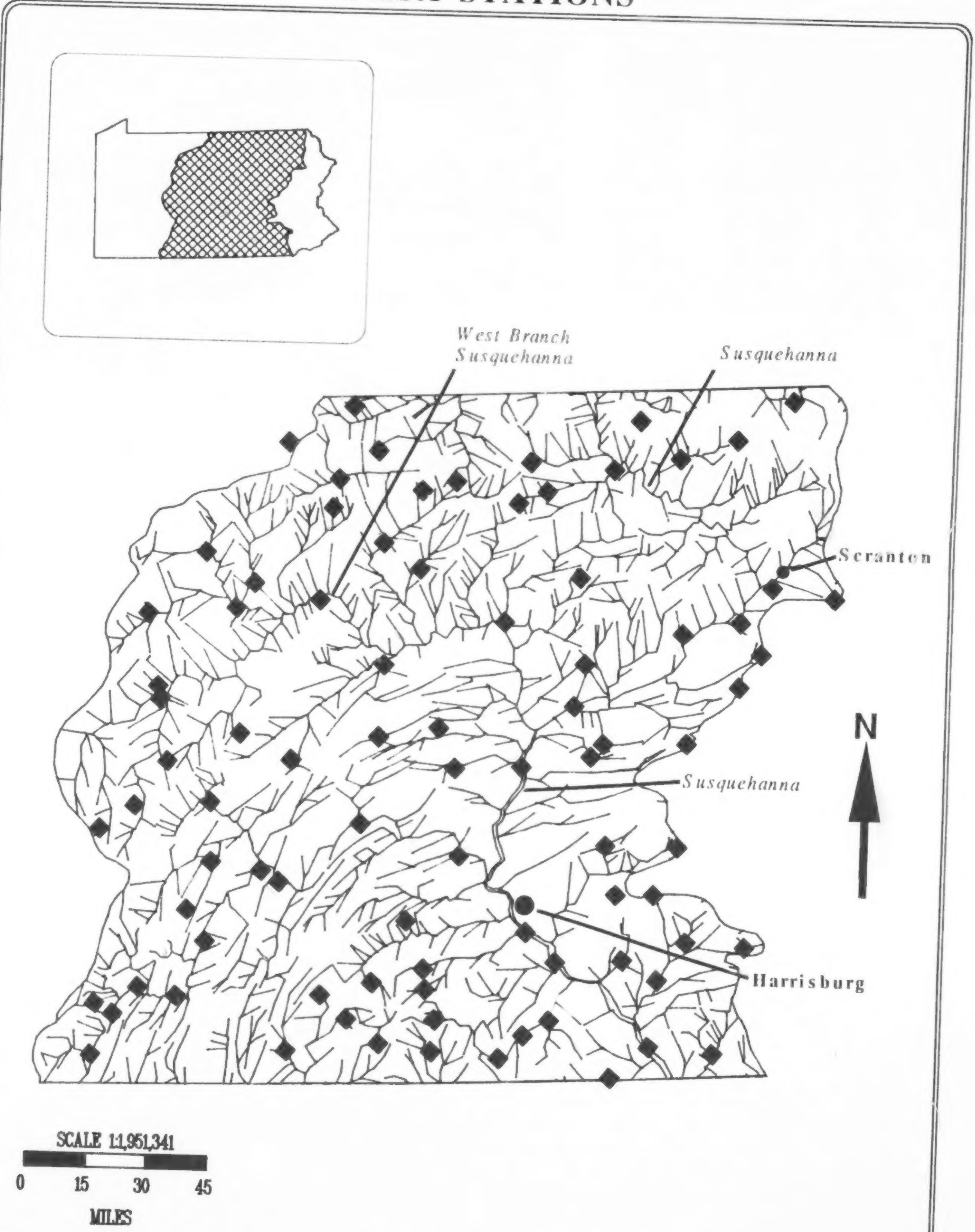
PENNSYLVANIA NOAA NWS CLIMATOLOGICAL DATA STATIONS

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
1	40 18 00	78 19 00	AFL	SUSQUEHANNA	UPPER JUNIATA	2050302	ALTOONA FAA AP
10	41 31 00	77 27 00	AFL	SUSQUEHANNA	PINE	2050205	CEDAR RUN
11	39 56 00	77 38 00	AFL	POTOMAC	CONOCOCHEAGUE-OPEQUON	2070004	CHAMBERSBURG 1 ESE
12	41 03 00	78 27 00	AFL	SUSQUEHANNA	UPPER WEST BRANCH SUSQUEHANNA	2050201	CLARENCE
13	41 01 00	78 27 00	AFL	SUSQUEHANNA	UPPER WEST BRANCH SUSQUEHANNA	2050201	CLEARFIELD
14	41 44 00	77 07 00	AFL	SUSQUEHANNA	TIOGA	2050104	COVINGTON 2 WSW
15	40 58 00	76 37 00	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-LACKAWANNA	2050107	DANVILLE
16	41 24 00	76 35 00	AFL	SUSQUEHANNA	LOWER WEST BRANCH SUSQUEHANNA	2050206	EAGLES MERE
17	39 49 00	77 16 00	AFL	POTOMAC	MONOCACY	2070009	EISENHOWER NH SITE
18	41 30 00	78 14 00	AFL	SUSQUEHANNA	SINNEMAHONING	2050202	EMPORIUM
19	41 26 00	77 17 00	AFL	SUSQUEHANNA	PINE	2050205	ENGLISH CTR.
2	40 30 00	76 30 00	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA-SWATARA	2050305	ALTOONA 3 W
20	40 10 00	76 10 00	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	EPHRATA
21	40 01 00	78 22 00	AFL	SUSQUEHANNA	RAYSTOWN	2050303	EVERETT
22	41 07 00	75 44 00	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-LACKAWANNA	2050107	FRANCIS E. WALTER D.
23	41 01 00	75 54 00	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-LACKAWANNA	2050107	FREELAND
24	41 44 00	77 38 00	AFL	SUSQUEHANNA	PINE	2050205	GALETON
25	41 39 00	77 40 00	AFL	SUSQUEHANNA	PINE	2050205	GERMANIA
26	41 15 00	75 27 00	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-LACKAWANNA	2050107	GOULDSBORO
27	39 48 00	76 59 00	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	HANOVER
28	40 13 00	76 51 00	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA-SWATARA	2050305	HARRISBURG FAA AP
29	39 50 00	76 20 00	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	HOLTWOOD
3	40 50 00	76 30 00	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-LACKAWANNA	2050107	BEAR GAP
30	40 06 00	77 18 00	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA-SWATARA	2050305	HUNTSDALE
31	39 49 00	78 44 00	AFL	POTOMAC	NORTH BRANCH POTOMAC	2070002	HYNDYMAN
32	39 59 00	78 43 00	AFL	SUSQUEHANNA	RAYSTOWN	2050303	KEGG
33	40 03 00	76 17 00	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	LANCASTER 2 NE F.P.
34	40 07 00	76 26 00	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	LANDISVILLE 2 NW
35	40 54 00	77 13 00	AFL	SUSQUEHANNA	LOWER WEST BRANCH SUSQUEHANNA	2050206	LAURELTON ST. VIL.
36	40 20 00	76 28 00	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA-SWATARA	2050305	LEBANON 2 W
37	41 41 00	76 43 00	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-TUNKHANNOCK	2050106	LE ROY
38	40 35 00	77 35 00	AFL	SUSQUEHANNA	LOWER JUNIATA	2050304	LEWISTOWN
39	41 07 00	77 27 00	AFL	SUSQUEHANNA	BAID EAGLE	2050204	LOCK HAVEN SEW.PLT.
4	40 46 00	77 09 00	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA-PENNS	2050301	BEAVERTOWN 1 NE
40	40 48 00	78 24 00	AFL	SUSQUEHANNA	UPPER WEST BRANCH SUSQUEHANNA	2050201	MADERA 2 SE
41	40 50 00	76 08 00	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA-PENNS	2050301	MAHANOY CITY 2 N
42	40 24 00	77 56 00	AFL	SUSQUEHANNA	LOWER JUNIATA	2050304	MAPLETON DEPOT
43	39 50 00	77 54 00	AFL	POTOMAC	CONOCOCHEAGUE-OPEQUON	2070004	MERCERSBURG 1 E
44	40 53 00	77 29 00	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA-PENNS	2050301	MILLHEIM
45	41 06 00	76 34 00	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-LACKAWANNA	2050107	MILLVILLE 2 SW
46	41 50 00	75 52 00	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-TUNKHANNOCK	2050106	MONTROSE
47	40 09 [illegible]	75 54 00	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	MORGANTOWN
48	40 22 00	76 18 00	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA-SWATARA	2050305	MYERSTOWN
49	39 44 00	76 30 00	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	NEW PARK
5	39 56 00	77 15 00	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	BIGLERVILLE
50	40 29 00	77 08 00	AFL	SUSQUEHANNA	LOWER JUNIATA	2050304	NEWPORT
51	39 48 00	76 03 00	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	OCTORARO LAKE
52	41 55 00	76 18 00	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-TUNKHANNOCK	2050106	ORWELL 2 NW
53	40 54 00	78 05 00	AFL	SUSQUEHANNA	UPPER WEST BRANCH SUSQUEHANNA	2050201	PHILIPSBURG FAA AP
54	40 02 00	77 18 00	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA-SWATARA	2050305	PINE GROVE FURNACE
55	40 39 00	78 33 00	AFL	SUSQUEHANNA	UPPER WEST BRANCH SUSQUEHANNA	2050201	PRINCE GALLITZIN SP
56	41 52 00	77 52 00	AFL	SUSQUEHANNA	PINE	2050205	RAYMOND
57	40 26 00	78 00 00	AFL	SUSQUEHANNA	RAYSTOWN	2050303	RAYSTOWN
58	41 20 00	77 44 00	AFL	SUSQUEHANNA	MIDDLE WEST BRANCH SUSQUEHANNA	2050203	RENOVO
59	41 47 00	76 07 00	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-TUNKHANNOCK	2050106	RUSHVILLE
6	40 16 00	77 22 00	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA-SWATARA	2050305	BLOSERVILLE 1 N
60	41 50 00	77 28 00	AFL	SUSQUEHANNA	PINE	2050205	SABINSVILLE 3 SE
61	40 12 00	78 15 00	AFL	SUSQUEHANNA	RAYSTOWN	2050303	SAXON
62	40 46 00	76 52 00	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA-PENNS	2050301	SELINSGROVE 2 S
63	40 48 00	76 33 00	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA-PENNS	2050301	SHAMOKIN
64	41 12 00	76 08 00	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-LACKAWANNA	2050107	SHICKSHINNY 3 N
65	40 03 00	77 31 00	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA-SWATARA	2050305	SHIPPENSBURG
66	41 19 00	78 06 00	AFL	SUSQUEHANNA	SINNEMAHONING	2050202	SINNEMAHONING
67	39 51 00	77 30 00	AFL	POTOMAC	CONOCOCHEAGUE-OPEQUON	2070004	SOUTH MOUNTAIN
68	39 52 00	76 52 00	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	SPRING GROVE
69	40 48 00	77 52 00	AFL	SUSQUEHANNA	BAID EAGLE	2050204	STATE COLLEGE

PENNSYLVANIA NOAA NWS CLIMATOLOGICAL DATA STATIONS (Cont'd)

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
7	39 57 00	78 39 00	AFL	SUSQUEHANNA	RAYSTOWN	2050303	BUFFALO MILLS
70	41 24 00	78 01 00	AFL	SUSQUEHANNA	SINNEMAHONING	2050202	STEVENSON DAM
71	40 29 00	76 11 00	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA-SWATARA	2050305	STRAUSSTOWN
72	41 57 00	75 36 00	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA	2050101	SUSQUEHANNA
73	41 45 00	76 25 00	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-TUNKHANNOCK	2050106	TOWANDA 1 ESE
74	41 47 00	76 47 00	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-TUNKHANNOCK	2050106	TROY
75	40 40 00	78 13 00	AFL	SUSQUEHANNA	UPPER JUNIATA	2050302	TYRONE 1 SE
76	41 18 00	78 29 00	AFL	SUSQUEHANNA	SINNEMAHONING	2050202	WEEDWILLE 1 N
77	41 42 00	77 16 00	AFL	SUSQUEHANNA	PINE	2050205	WELLSBORO 3 S
78	41 59 00	77 34 00	AFL	SUSQUEHANNA	TIOGA	2050104	WESTFIELD 5 S
79	41 14 00	75 53 00	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-LACKAWANNA	2050107	WILKES BARRE
8	41 39 00	76 51 00	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-TUNKHANNOCK	2050106	CANTON
80	41 20 00	75 44 00	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-LACKAWANNA	2050107	WILKES BARRE WSO
81	40 28 00	78 12 00	AFL	SUSQUEHANNA	UPPER JUNIATA	2050302	WILLIAMSBURG
82	41 15 00	76 55 00	AFL	SUSQUEHANNA	LOWER WEST BRANCH SUSQUEHANNA	2050206	WILLIAMSPORT WSO AP
83	40 03 00	78 32 00	AFL	SUSQUEHANNA	RAYSTOWN	2050303	WOLFSBURG
84	39 55 00	76 45 00	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	YORK 3 SSW PUMP STN.
85	40 07 00	76 43 00	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	YORK HAVEN
9	40 35 00	78 42 00	AFL	SUSQUEHANNA	UPPER WEST BRANCH SUSQUEHANNA	2050201	CARROLLTOWN 2 SSE

PENNSYLVANIA NOAA NWS CLIMATOLOGICAL DATA STATIONS



SUSQUEHANNA STEAM ELECTRIC STATION MONITORING PROGRAM - METEOROLOGY COMPONENT

PROGRAM DESCRIPTION: The Susquehanna Steam Electric Station Monitoring Program - Meteorology Component is one part of an ongoing ecological study of the Susquehanna River in the vicinity of the Susquehanna Steam Electric Station (Susquehanna SES). Through this program, recording of temperature and barometric pressure is performed on a continuous basis, and observations of fog, cloud cover and collected precipitation are recorded one time per day.

PROGRAM OBJECTIVE: To supplement additional environmental monitoring data used to evaluate the environmental impact of the Susquehanna SES by comparing preoperational (pre-1983) and operational data.

DATE INITIATED: 1977

COORDINATING AGENCY:

Pennsylvania Power and Light Company
2 North Ninth Street
Allentown, Pennsylvania 18101

Ecology III, Inc.
Susquehanna SES Biological Laboratory
R.D. 1
Berwick, Pennsylvania 18603

FUNDING AGENCY:

Pennsylvania Power and Light Company
Allegheny Electric Cooperative, Inc.

PARTICIPATING AGENCIES:

Pennsylvania Power and Light Company (PP&L)
Ecology III, Inc. (EIII)

INVESTIGATORS:

Program Director	Jerome S. Fields	PP&L
Principal Investigator	James D. Montgomery	EIII

PARAMETERS:

Air Temperature
Barometric Pressure
Precipitation
Fog
Cloud Cover

STATIONS: There are two stations; one at the Susquehanna SES Biological Laboratory and one at the Transmission Corridor Field just north of U.S. Route 11.

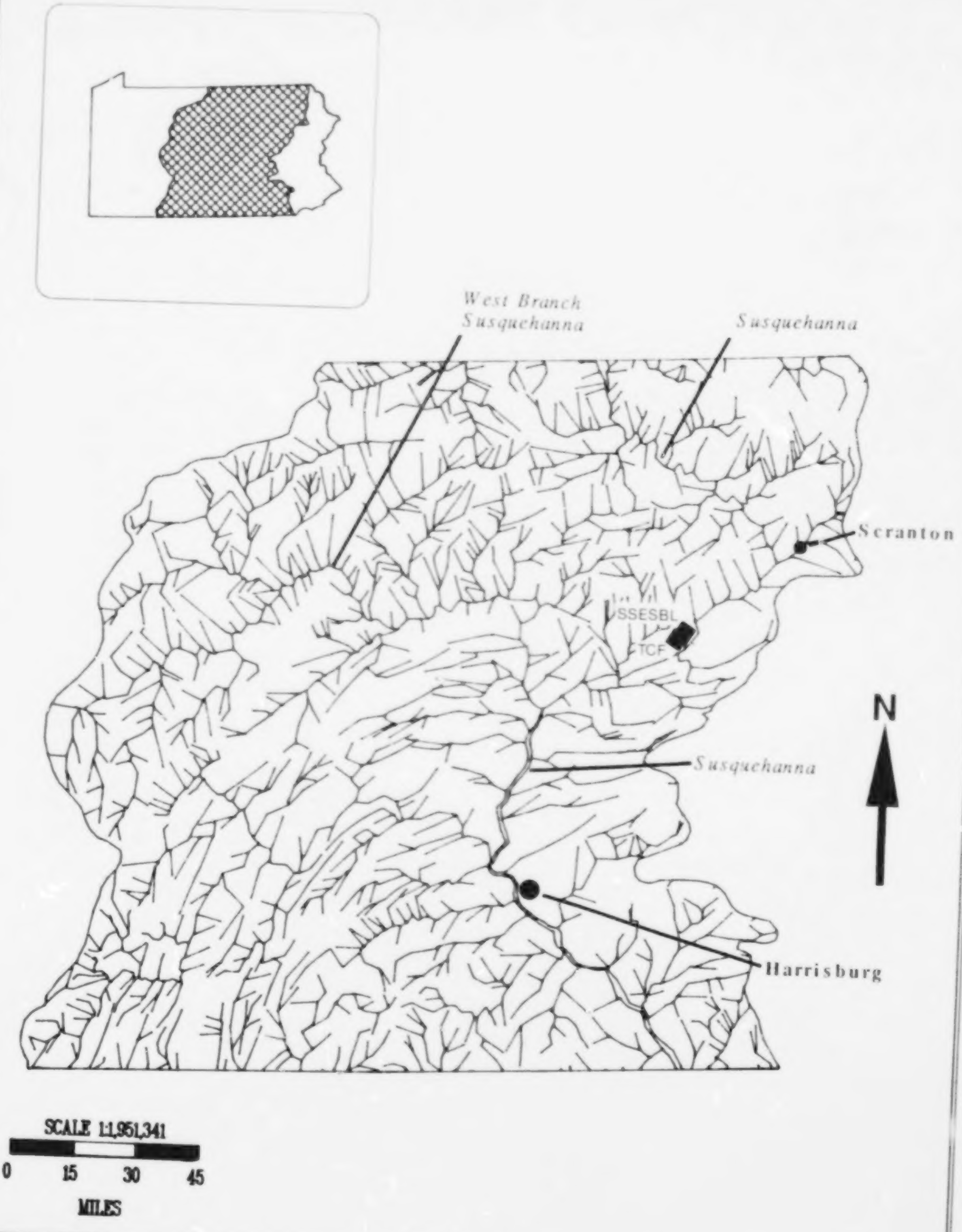
SAMPLE COLLECTION: At the Susquehanna SES Biological Laboratory, temperature, barometric pressure, precipitation collections and fog and cloud cover observations are made and, at the Transmission Corridor Field just north of U.S. Route 11, additional fog and cloud cover observations are made. Temperature and barometric pressure are continuously recorded using a Taylor Weather-Hawk Recording Thermometer and Barometer respectively. Maximum and minimum temperatures, with times of occurrence, are tabulated daily and barometric pressure readings are tabulated at 1200 and 2400 hours. Precipitation is collected in a U.S. Weather Bureau Rain Gauge at the Biological Laboratory with the amount recorded daily except on weekends, and weekend precipitation measured Monday morning. Fog observations are made at the Biological Laboratory and at the Transmission Corridor Field between 1700 and 1800 hours daily except on weekends. Fog is categorized as "light" (visibility 1/4 mile or more) or "dense" (visibility less than 1/4 mile) as done by the National Weather Service. Photographs of the cooling towers are taken at each location to document the presence of or absence of fog using a 35mm Minolta XF-M camera with a macrozoom lens set at 70 mm. Slides are stored at the Biological Laboratory. Weather conditions, including cloud cover and type of precipitation, are recorded at the same time as fog observations. Since conditions differ little between the two stations, data are combined for reporting purposes with fog reported if it occurs at either station. Presence or absence of a plume from the cooling towers is determined from the photographs. In the cases of dense fog where plume presence cannot be determined, no report of plume is made.

PROGRAM INTEGRATION: The Susquehanna SES Monitoring Program - Meteorology Component is one component of an ongoing ecological study of the Susquehanna River in the vicinity of the Susquehanna SES.

SUSQUEHANNA STEAM ELECTRIC STATION MONITORING STATIONS - METEOROLOGY COMPONENT

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
SSESBL	41 06 08	76 09 33	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-LACKAWANNA	2050107	SSES BIOLOGICAL LABORATORY
TCF	41 05 25	76 10 33	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-LACKAWANNA	2050107	TRANSMISSION CORRIDOR FIELD

SUSQUEHANNA STEAM ELECTRIC STATION
MONITORING STATIONS - METEOROLOGY COMPONENT



MARYLAND NOAA NWS CLIMATOLOGICAL DATA NETWORK

PROGRAM DESCRIPTION: The Maryland NOAA National Weather Service Climatological Data Network is part of a national network of climatological (weather) monitoring stations. There are 50 stations in the Chesapeake Bay basin in Maryland with at least temperature and precipitation records. One station at Baltimore is a designated Local Climatological Data (LCD) station, which collects additional parameters on a more frequent basis.

PROGRAM OBJECTIVE: To provide a long-term climatological data base.

DATE INITIATED: Earliest 1869 [Varies for each station]

COORDINATING AGENCY:
National Oceanic and Atmospheric Administration
National Climatic Data Center
Federal Building
Asheville, North Carolina 28801

FUNDING AGENCY: National Oceanic and Atmospheric Administration

PARTICIPATING AGENCY: National Oceanic and Atmospheric Administration (NOAA)

INVESTIGATORS: N/A

PARAMETERS:

While parameters vary, they include one or more of the following:

- Temperature
- Degree Days
- Precipitation
- Precipitation Type
- Wind Speed
- Wind Direction
- Barometric Pressure
- Sunshine
- Sky Cover
- Weather Type
- Evaporation
- Soil Temperature

STATIONS: There are 50 stations located in the Maryland portion of the Chesapeake Bay basin.

SAMPLE COLLECTION: Frequency of collection varies. Measurements are generally taken on a daily basis with calculations of daily, monthly, and annual maximums, minimums, averages and departures from normal. Totals for precipitation and precipitation types, evaporation and wind movement and number of days above and below maximum and minimum temperatures are also quantified. Seasonal heating-degree days, snowfall and cooling-degree days are also calculated.

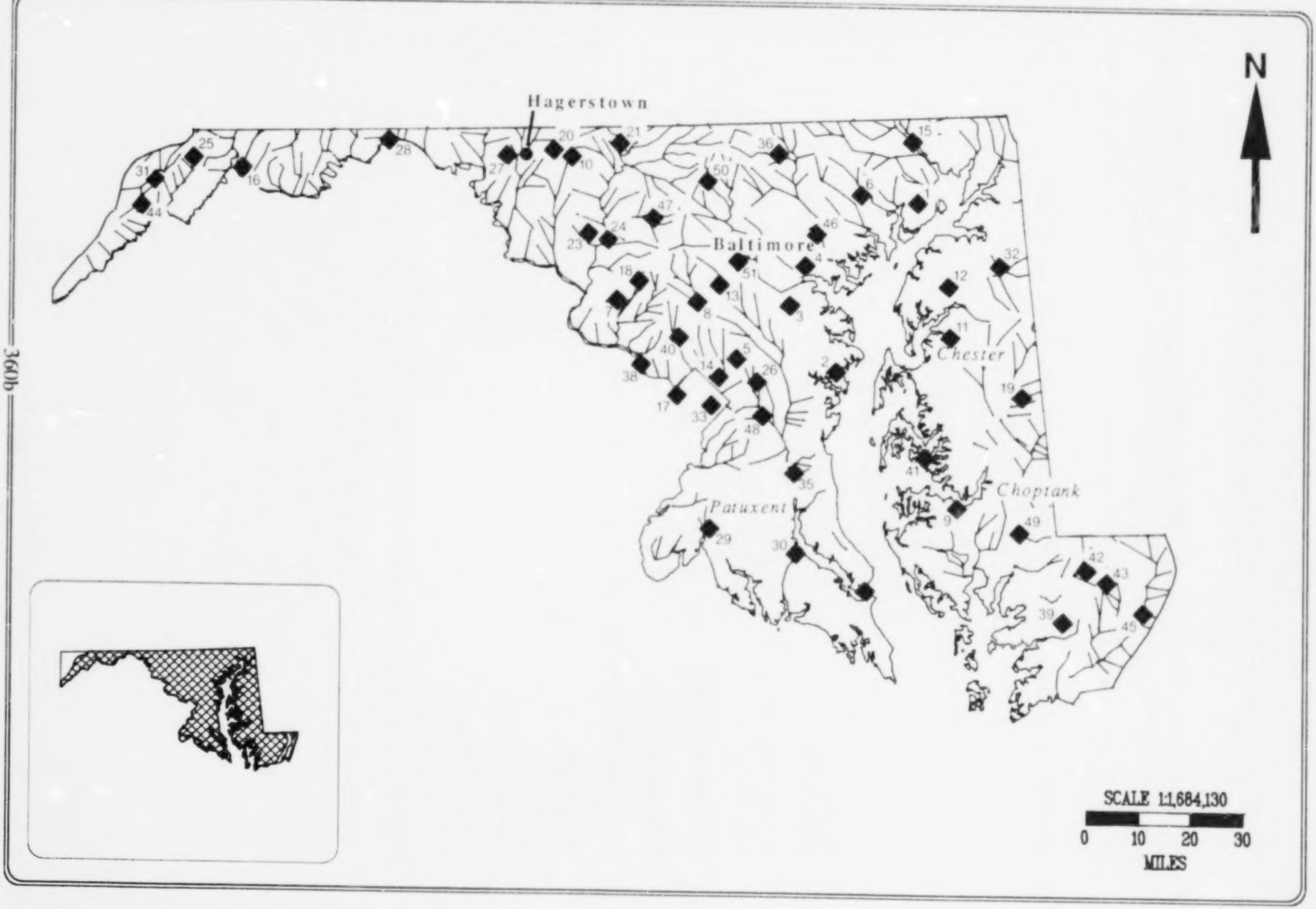
The Local Climatological Data (LCD) station in Baltimore, Maryland takes hourly measurements, and hourly and 3-hourly averages are calculated in addition to the above.

PROGRAM INTEGRATION: These stations are part of a national network for climatological data.

MARYLAND NOAA NWS CLIMATOLOGICAL DATA STATIONS

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
1	39 28 00	76 10 00	BFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	ABERDEEN PHILLIPS
10	39 39 00	77 29 00	AFL	POTOMAC	MONOCACY	2070009	CATOCTIN MT.PARK
11	39 03 00	76 04 00	BFL	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	CENTREVILLE
12	39 13 00	76 04 00	BFL	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	CHESTERTOWN
13	39 15 00	76 56 00	AFL	PATUXENT	PATUXENT	2060006	CLARKSVILLE 3 NNE
14	38 59 00	76 57 00	BFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	COLLEGE PARK
15	39 39 00	76 10 00	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	CONOWINGO DAM
16	39 38 00	78 45 00	AFL	POTOMAC	NORTH BRANCH POTOMAC	2070002	CUMBERLAND 2
17	38 56 00	77 07 00	AFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	DALECARLIA RESV.DC
18	39 16 00	77 14 00	AFL	POTOMAC	MONOCACY	2070009	DAMASCUS 2 SW
19	38 53 00	75 48 00	BFL	EASTERN SHORE	CHOPTANK	2060005	DENTON 2 E
2	38 59 00	76 30 00	BFL	WEST CHESAPEAKE	SEVERN	2060004	ANNAPOLIS POL.BRKS
20	39 40 00	77 33 00	AFL	POTOMAC	CONOCOCHEAGUE-OPEQUON	2070004	EDGEMONT
21	39 41 00	77 18 00	AFL	POTOMAC	MONOCACY	2070009	EMMITSBURG 2 SE
23	39 25 00	77 26 00	AFL	POTOMAC	MONOCACY	2070009	FREDERICK POL.BRKS.
24	39 24 00	77 22 00	AFL	POTOMAC	MONOCACY	2070009	FREDERICK 3 E
25	39 40 00	78 56 00	AFL	POTOMAC	NORTH BRANCH POTOMAC	2070002	FROSTBURG 2
26	38 58 00	76 48 00	BFL	PATUXENT	PATUXENT	2060006	GLENN DALE BELL STN.
27	39 39 00	77 44 00	AFL	POTOMAC	CONOCOCHEAGUE-OPEQUON	2070004	HAGERSTOWN
28	39 42 00	78 11 00	AFL	POTOMAC	CONOCOCHEAGUE-OPEQUON	2070004	HANCOCK FRUIT LAB
29	38 32 00	77 00 00	BFL	POTOMAC	LOWER POTOMAC	2070011	LA PLATA 1 W
3	39 11 00	76 40 00	BFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	BALTIMORE WSO AP
30	38 27 00	76 41 00	BFL	PATUXENT	PATUXENT	2060006	MECHANICSVILLE 1 E
31	39 36 00	79 05 00	AFL	POTOMAC	NORTH BRANCH POTOMAC	2070002	MERRILL
32	39 16 00	75 52 00	BFL	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	MILLINGTON 1 SE
33	38 54 00	76 59 00	BFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	NAT'L.ARBORETUM DC
35	38 41 00	76 40 00	BFL	PATUXENT	PATUXENT	2060006	OWINGS FERRY LANDING
36	39 38 00	76 42 00	AFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	PARKTON 2SW
37	38 20 00	76 25 00	BFL	WEST CHESAPEAKE	SEVERN	2060004	PATUXENT RIVER
38	39 02 00	77 15 00	AFL	POTOMAC	MIDDLE POTOMAC CATOCTIN	2070008	POTOMAC FILT.PLT
39	38 13 00	75 41 00	BFL	EASTERN SHORE	BLACKWATER-WICOMICO	2060007	PRINCESS ANNE
4	39 17 00	76 37 00	BFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	BALTIMORE WSO CI
40	39 06 00	77 06 00	AFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	ROCKVILLE 1 NE
41	38 43 00	76 11 00	EE-2	EASTERN SHORE	CHOPTANK	2060005	ROYAL OAK 2 SSW
42	38 22 00	75 35 00	BFL	EASTERN SHORE	BLACKWATER-WICOMICO	2060007	SALISBURY
43	38 20 00	75 31 00	BFL	EASTERN SHORE	BLACKWATER-WICOMICO	2060007	SALISBURY FAA AP
44	39 31 00	79 08 00	AFL	POTOMAC	NORTH BRANCH POTOMAC	2070002	SAVAGE RIVER DAM
45	38 14 00	75 23 00	BFL	EASTERN SHORE	POCOMOKE	2060009	SNOW HILL 4 N
46	39 23 00	76 34 00	AFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	TOWSON
47	39 27 00	77 11 00	AFL	POTOMAC	MONOCACY	2070009	UNIONVILLE
48	38 52 00	76 47 00	BFL	PATUXENT	PATUXENT	2060006	U. MARLBORO 3 NNW
49	38 29 00	75 50 00	BFL	EASTERN SHORE	NANTICOKE	2060008	VIENNA
5	39 02 00	76 53 00	BFL	PATUXENT	PATUXENT	2060006	BELTSVILLE
50	39 33 00	76 58 00	AFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	WESTMINSTER POL.BRK.
51	39 20 00	76 52 00	AFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	WOODSTOCK
6	39 30 00	76 23 00	AFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	HENSON POL.BARR.
7	39 13 00	77 20 00	AFL	POTOMAC	MIDDLE POTOMAC CATOCTIN	2070008	BOYDS 2 NW
8	39 12 00	77 01 00	AFL	PATUXENT	PATUXENT	2060006	BRIGHTON DAM
9	38 34 00	76 04 00	BFL	EASTERN SHORE	CHOPTANK	2060005	CAMBRIDGE WT PLT.

MARYLAND NOAA NWS CLIMATOLOGICAL DATA STATIONS



DELAWARE NOAA NWS CLIMATOLOGICAL DATA NETWORK

PROGRAM DESCRIPTION: The Delaware NOAA National Weather Service Climatological Data Network is part of a national network of climatological (weather) monitoring stations. There are two stations in the Chesapeake Bay basin in Delaware (as of 1986) collecting at least temperature and precipitation records. There are no Local Climatological Data (LCD) stations in the state of Delaware.

PROGRAM OBJECTIVE: To provide a long-term climatological data base.

DATE INITIATED: 1910 [Varies for each station]

COORDINATING AGENCY:

National Oceanic and Atmospheric Administration
National Climatic Data Center
Federal Building
Asheville, North Carolina 28801

FUNDING AGENCY: National Oceanic and Atmospheric Administration

PARTICIPATING AGENCY: National Oceanic And Atmospheric Administration (NOAA)

INVESTIGATORS: (anon)

PARAMETERS:

While parameters vary, they include one or more of the following:

Temperature
Degree Days
Precipitation
Precipitation Type
Wind Speed
Wind Direction,
Barometric Pressure
Sunshine
Sky Cover
Weather Type
Evaporation
Soil Temperature

STATIONS: There are two stations, one is located in Bridgeville and one in Georgetown.

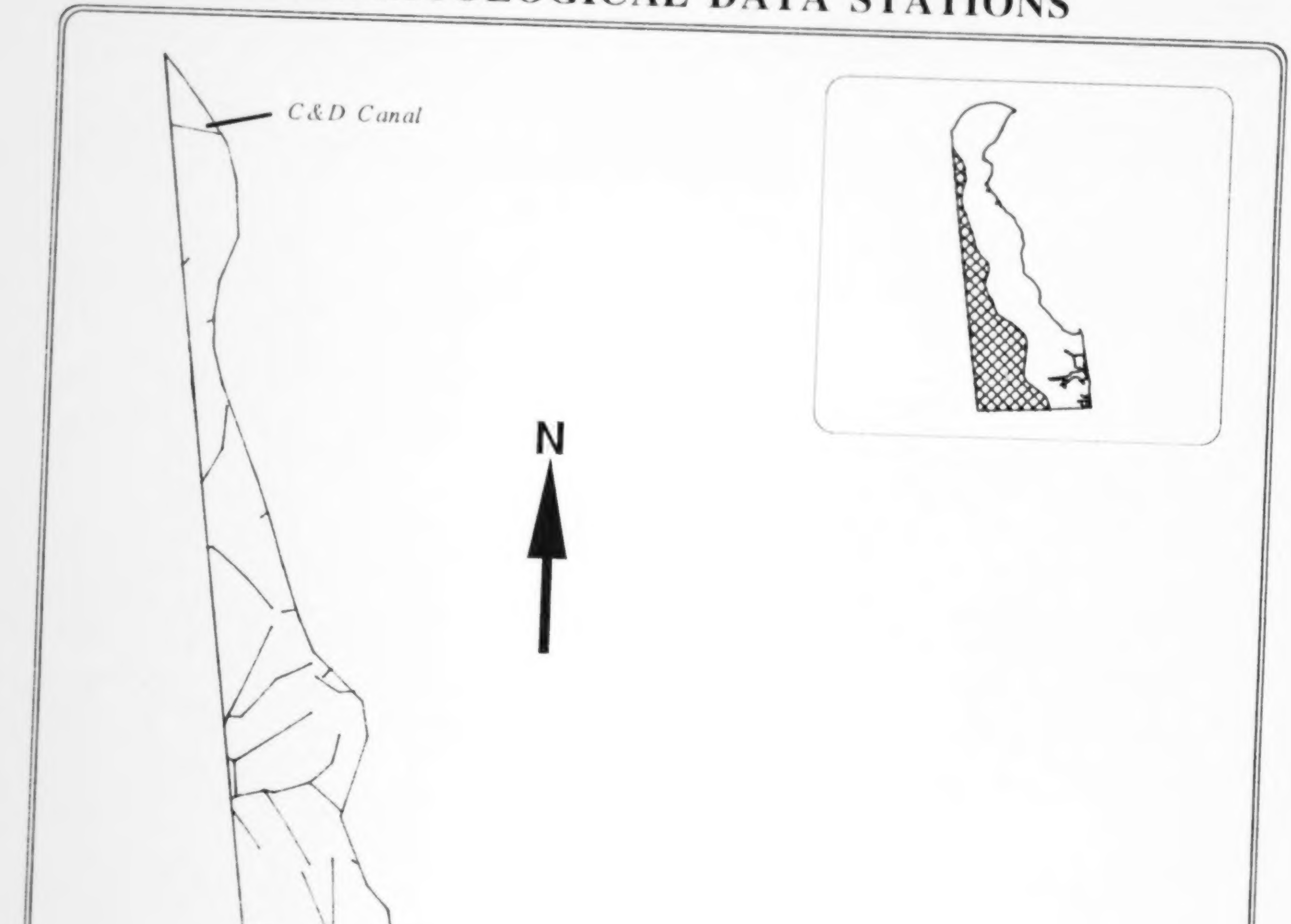
SAMPLE COLLECTION: Frequency of collection varies. Measurements are generally taken on a daily basis with calculations of daily, monthly, and annual maximums, minimums, averages and departures from normal. Totals for precipitation and precipitation types, evaporation and wind movement and number of days above and below maximum and minimum temperatures are also quantified. Seasonal heating-degree days, snowfall and cooling-degree days are also calculated.

PROGRAM INTEGRATION: These stations are part of a national network for climatological data.

DELAWARE NOAA NWS CLIMATOLOGICAL DATA STATIONS

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
BRIDGEVILL	38 47 00	75 30 00	BFL	EASTERN SHORE	NANTICOKE	2060008	BRIDGEVILLE, DE
GEORGETOWN	38 38 00	75 27 00	BFL	EASTERN SHORE	NANTICOKE	2060008	GEORGETOWN 5 SW

DELAWARE NOAA NWS
CLIMATOLOGICAL DATA STATIONS



DISTRICT OF COLUMBIA NOAA NWS CLIMATOLOGICAL DATA NETWORK

PROGRAM DESCRIPTION: The District of Columbia NOAA National Weather Service Climatological Data Network is part of a national network of climatological (weather) monitoring stations. There is one climatological station in the District of Columbia at the National Arboretum.

PROGRAM OBJECTIVES: To provide a long-term climatological data base.

DATE INITIATED: Not documented

COORDINATING AGENCY:

National Oceanic and Atmospheric Administration
National Climatic Data Center
Federal Building
Asheville, North Carolina 28801

FUNDING AGENCY: National Oceanic and Atmospheric Administration

PARTICIPATING AGENCIES: National Oceanic and Atmospheric Administration (NOAA)

INVESTIGATORS: N/A

PARAMETERS:

While parameters vary, they include one or more of the following:

Temperature
Degree Days
Precipitation
Precipitation Type
Wind Speed
Wind Direction
Barometric Pressure
Sunshine
Sky Cover
Weather Type
Evaporation
Soil Temperature

STATIONS: There is one station located in the National Arboretum in the District of Columbia.

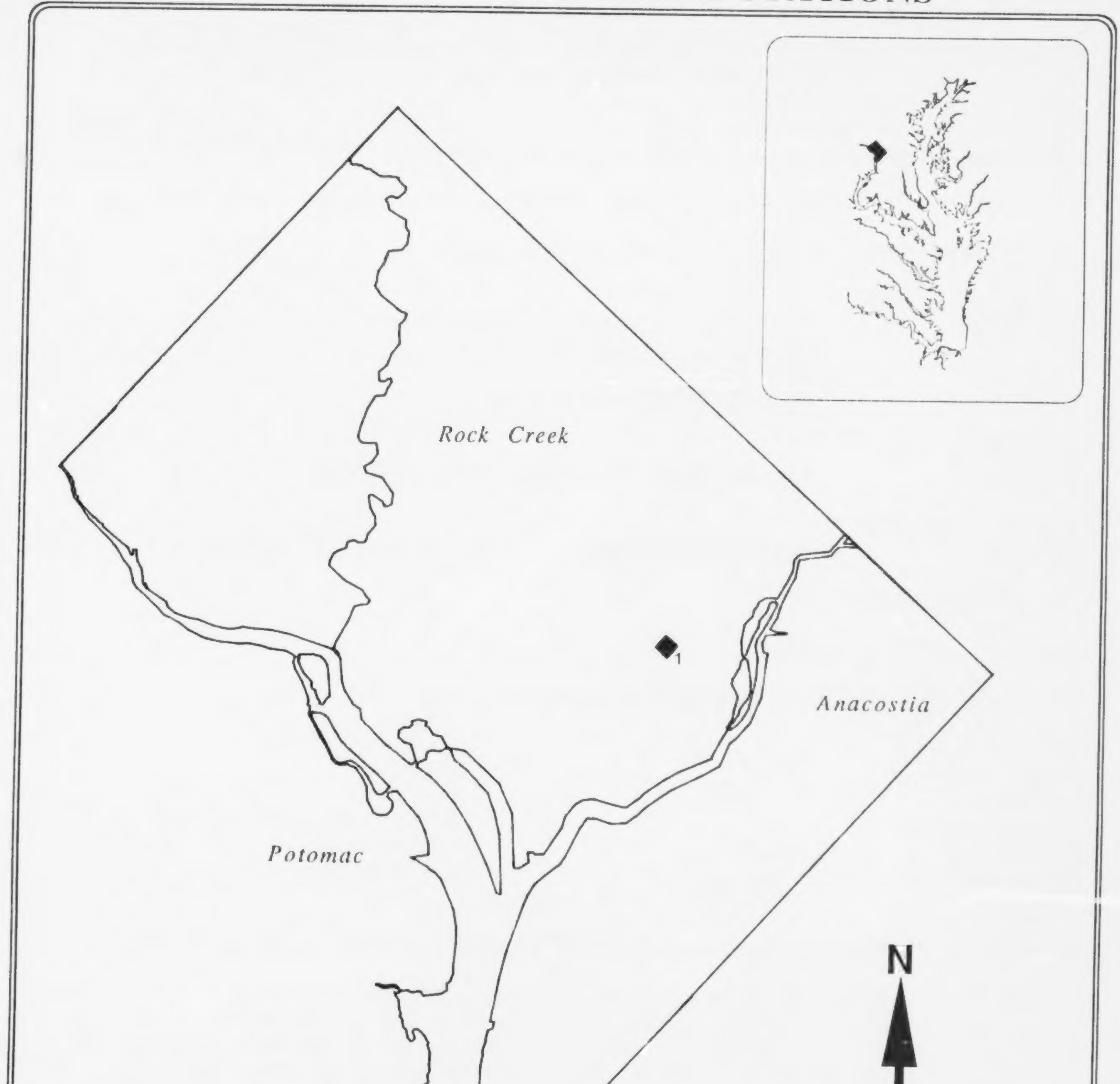
SAMPLE COLLECTION: Measurements are generally taken on a daily basis with calculations of daily, monthly, and annual maximums, minimums, averages and departures from normal. Totals for precipitation and precipitation types, evaporation and wind movement and number of days above and below maximum and minimum temperatures are also quantified. Seasonal heating-degree days, snowfall and cooling-degree days are also calculated.

PROGRAM INTEGRATION: This station is part of a national network for climatological data.

DISTRICT OF COLUMBIA NOAA NWS CLIMATOLOGICAL DATA STATIONS

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
1	38 54 00	76 59 00	BFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	NAT'L.ARBORETUM DC

DISTRICT OF COLUMBIA NOAA NWS CLIMATOLOGICAL DATA STATIONS



VIRGINIA NOAA NWS CLIMATOLOGICAL DATA NETWORK

PROGRAM DESCRIPTION: Virginia NOAA National Weather Service Climatological Data Network is part of a national network of climatological (weather) monitoring stations. There are 83 stations in the Chesapeake Bay basin in Virginia (as of 1986) collecting at least temperature and precipitation records. Two stations at Washington National and Dulles Airports, are designated Local Climatological Data (LCD) stations, which collect additional parameters on a more frequent basis.

PROGRAM OBJECTIVE: To provide a long-term climatological data base.

DATE INITIATED: Earliest 1837 [Varies for each station]

COORDINATING AGENCY:

National Oceanic and Atmospheric Administration
National Climatic Data Center
Federal Building
Asheville, North Carolina 28801

FUNDING AGENCY: National Oceanic and Atmospheric Administration

PARTICIPATING AGENCY: National Oceanic and Atmospheric Administration (NOAA)

INVESTIGATORS: N/A

PARAMETERS MEASURED:

While parameters vary, they include one or more of the following:

- Temperature
- Degree Days
- Precipitation
- Precipitation Type
- Wind Speed
- Wind Direction
- Barometric Pressure
- Sunshine
- Sky Cover
- Weather Type
- Evaporation
- Soil Temperature

STATIONS: There are 83 stations located in the Virginia portion of the Chesapeake Bay basin.

SAMPLE COLLECTION: Frequency of collection varies. Measurements are generally taken on a daily basis with calculations of daily, monthly, and annual maximums, minimums, averages and departures from normal. Totals for precipitation and precipitation types, evaporation and wind movement and number of days above and below maximum and minimum temperatures are also quantified. Seasonal heating-degree days, snowfall and cooling-degree days are also calculated.

There are two Local Climatological Data (LCD) stations at Washington National Airport and Dulles Airport which take hourly measurements, and hourly and 3-hourly averages are calculated in addition to the above.

PROGRAM INTEGRATION: These stations are part of a national network for climatological data.

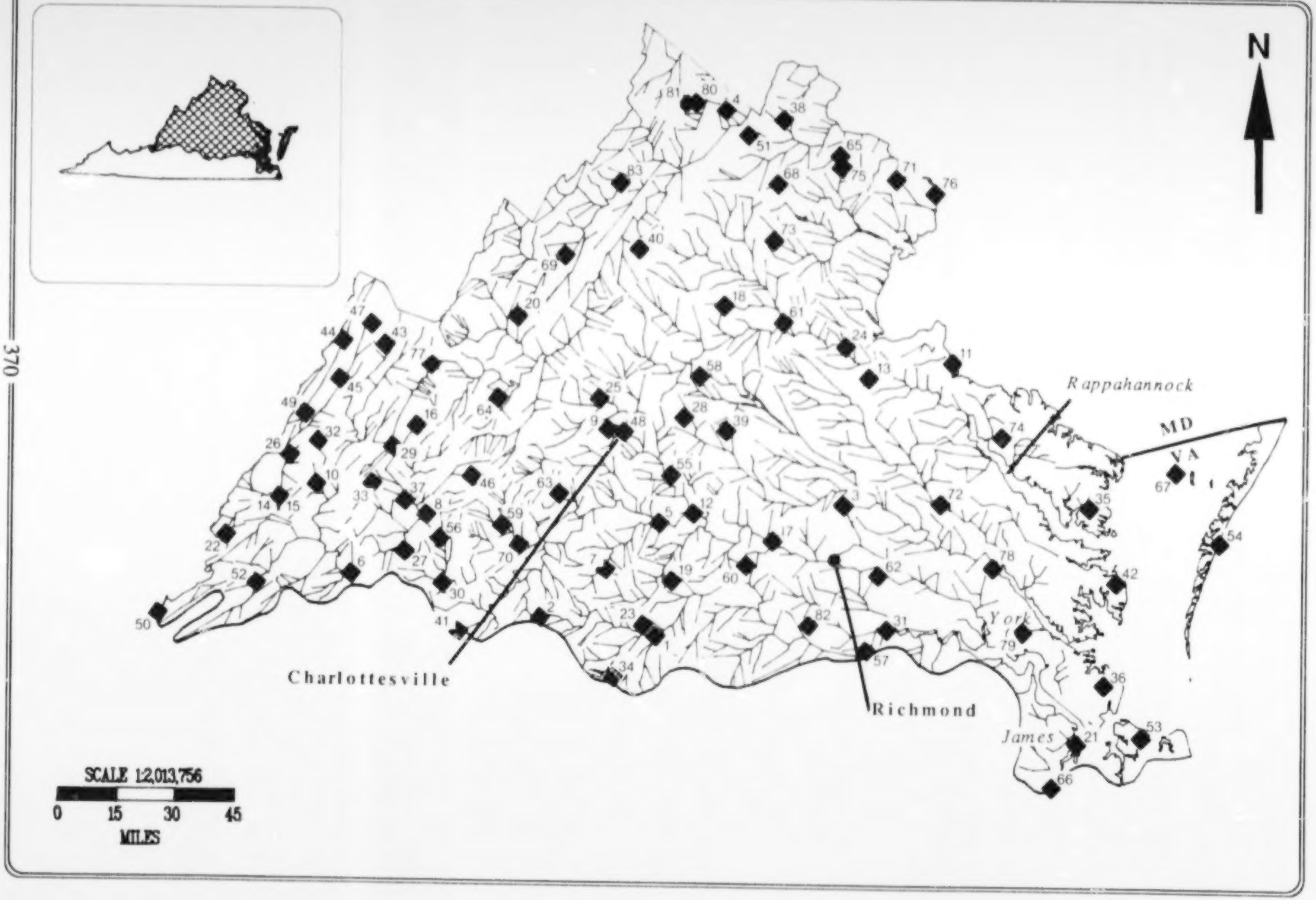
VIRGINIA NOAA NWS CLIMATOLOGICAL DATA STATIONS

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
1	37 18 00	78 20 00	AFL	JAMES	APPOMATTOX	2080207	AMELIA 4 SW
10	37 51 00	79 50 00	AFL	JAMES	UPPER JAMES	2080201	CLIFTON FORGE 2 NW
11	38 15 00	76 58 00	BFL	POTOMAC	LOWER POTOMAC	2070011	COLONIAL BEACH
12	37 44 00	78 09 00	AFL	JAMES	RIVANNA	2080204	COLUMBIA 2 SSE
13	38 12 00	77 22 00	BFL	RAPPAHANNOCK	LOWER RAPPAHANNOCK	2080104	CORBIN
14	37 48 00	80 00 00	AFL	JAMES	UPPER JAMES	2080201	COVINGTON
15	37 48 00	80 00 00	AFL	JAMES	UPPER JAMES	2080201	COVINGTON FILT.PT.
16	38 03 00	79 23 00	AFL	JAMES	MAURY	2080202	CRAIGSVILLE 2S
17	37 38 00	77 48 00	AFL	JAMES	MIDDLE JAMES-WILLIS	2080205	CROZIER
18	38 28 00	78 00 00	AFL	RAPPAHANNOCK	RAPIDAN-UPPER RAPPAHANNOCK	2080103	CULPEPPER
19	37 30 00	78 15 00	AFL	JAMES	MIDDLE JAMES-WILLIS	2080205	CUMBERLAND
2	37 22 00	78 50 00	AFL	JAMES	APPOMATTOX	2080207	APPOMATTOX
20	38 27 00	78 56 00	AFL	POTOMAC	SOUTH FORK SHENANDOAH	2070005	DALE ENTERPRISE
21	36 53 00	76 29 00	LE-5	JAMES	LOWER JAMES	2080206	DRIVER
22	37 40 00	80 14 00	AFL	JAMES	UPPER JAMES	2080201	EARLEHURST
23	37 20 00	78 23 00	AFL	JAMES	APPOMATTOX	2080207	FARMVILLE 2 N
24	38 19 00	77 27 00	BFL	RAPPAHANNOCK	LOWER RAPPAHANNOCK	2080104	FREDERICKSBURG NP
25	38 09 00	78 34 00	AFL	JAMES	RIVANNA	2080204	FREE UNION
26	37 57 00	79 57 00	AFL	JAMES	UPPFR JAMES	2080201	GATHRIGHT DAM
27	37 37 00	79 26 00	AFL	JAMES	UPPER JAMES	2080201	GLASGOW 1 SE
28	38 09 00	78 11 00	AFL	YORK	PAMUNKEY	2080106	GORDONSVILLE 3 S
29	37 59 00	79 30 00	AFL	JAMES	MAURY	2080202	GOSHEN
3	37 45 00	77 29 00	AFL	YORK	PAMUNKEY	2080106	ASHLAND
30	37 30 00	79 16 00	AFL	JAMES	MIDDLE JAMES-BUFFALO	2080203	HOLCOMBS ROCK
31	37 18 00	77 18 00	BFL	JAMES	APPOMATTOX	2080207	HOPEWELL
32	38 00 00	79 50 00	AFL	JAMES	UPPER JAMES	2080201	HOT SPRING
33	37 51 00	79 35 00	AFL	JAMES	MAURY	2080202	KERRS CREEK 6 WNW
34	37 10 00	78 31 00	AFL	JAMES	APPOMATTOX	2080207	KEYSVILLE 8 N
35	37 43 00	76 23 00	BFL	RAPPAHANNOCK	LOWER RAPPAHANNOCK	2080104	KILMANOCK 1 N
36	37 05 00	76 21 00	BFL	JAMES	LYNNHAVEN-POQUOSON	2080108	LANGLEY AFB
37	37 47 00	79 26 00	AFL	JAMES	MAURY	2080202	LEXINGTON
38	39 07 00	77 43 00	AFL	POTOMAC	MIDDLE POTOMAC CATOCTIN	2070008	LINCOLN
39	38 02 00	78 00 00	AFL	YORK	PAMUNKEY	2080106	LOUISA
4	39 09 00	77 59 00	AFL	POTOMAC	CONOCOCHEAGUE-OPEQUON	2070004	BERRYVILLE
40	38 40 00	78 23 00	AFL	POTOMAC	SOUTH FORK SHENANDOAH	2070005	LURAY 5 E
41	37 20 00	79 12 00	AFL	JAMES	MIDDLE JAMES-BUFFALO	2080203	LYNCHBURG WSO AP
42	37 27 00	76 17 00	BFL	YORK	GREAT WICOMICO-PIANKATANK	2080102	MATHEWS 2 ENE
43	38 21 00	79 32 00	AFL	JAMES	UPPER JAMES	2080201	MCDOWELL 3 W
44	38 21 00	79 43 00	AFL	JAMES	UPPER JAMES	2080201	MILLGAP 2 NNW
45	38 13 00	79 44 00	AFL	JAMES	UPPER JAMES	2080201	MILL RUN FARM
46	37 53 00	79 08 00	AFL	JAMES	MAURY	2080202	MONTEBELLO 2 NE
47	38 25 00	79 35 00	AFL	JAMES	UPPER JAMES	2080201	MONTEREY
48	38 01 00	78 27 00	AFL	JAMES	RIVANNA	2080204	MONTICELLO
49	38 06 00	79 53 00	AFL	JAMES	UPPER JAMES	2080201	MOUNTAIN GROVE
5	37 42 00	78 18 00	AFL	JAMES	MIDDLE JAMES-BUFFALO	2080203	BREMO BLUFF
50	37 23 00	80 32 00	AFL	JAMES	UPPER JAMES	2080201	MT.LAKE BIOLOG.STA.
51	39 04 00	77 53 00	AFL	POTOMAC	SHENANDOAH	2070007	MOUNT WEATHER
52	37 30 00	80 06 00	AFL	JAMES	UPPER JAMES	2080201	NEW CASTLE
53	36 54 00	76 12 00	BFL	JAMES	LYNNHAVEN-POQUOSON	2080108	NORFOLD WSO AP
54	37 35 00	75 49 00	BFL	EASTERN SHORE	POCOMOKE	2060009	PAINTER 2 W
55	37 52 00	78 15 00	AFL	JAMES	RIVANNA	2080204	PALMYRA 1 E
56	37 40 00	79 17 00	AFL	JAMES	MIDDLE JAMES-BUFFALO	2080203	PEDLAR DAM
57	37 14 00	77 24 00	AFL	JAMES	APPOMATTOX	2080207	PETERSBURG
58	38 13 00	78 37 00	AFL	YORK	PAMUNKEY	2080106	PIEDMONT RESEARCH S.
59	37 42 00	79 00 00	AFL	JAMES	MIDDLE JAMES-BUFFALO	2080203	PINEY RIV. 2 SE
6	37 32 00	79 41 00	AFL	JAMES	UPPER JAMES	2080201	BUCHANAN
60	37 33 00	77 56 00	AFL	JAMES	MIDDLE JAMES-WILLIS	2080205	POWHATTAN
61	38 24 00	77 44 00	AFL	RAPPAHANNOCK	RAPIDAN-UPPER RAPPAHANNOCK	2080103	RICHARDSVILLE
62	37 30 00	77 20 00	BFL	JAMES	LOWER JAMES	2080206	RICHMOND WSO AP
63	37 48 00	78 45 00	AFL	JAMES	MIDDLE JAMES-BUFFALO	2080203	ROCKFISH
64	38 09 00	79 02 00	AFL	POTOMAC	SOUTH FORK SHENANDOAH	2070005	STAUNTON SEW.PL.
65	38 59 00	77 28 00	AFL	POTOMAC	MIDDLE POTOMAC CATOCTIN	2070008	STERLING (RCS)
66	36 44 00	76 36 00	BFL	JAMES	LYNNHAVEN-POQUOSON	2080108	SUFFOCK LAKE KILBY
67	37 50 00	76 00 00	CB-5	CHESBAY	UPPER CHESAPEAKE BAY	2060001	TANGIER ISLAND
68	38 54 00	77 45 00	AFL	POTOMAC	MIDDLE POTOMAC CATOCTIN	2070008	THE PLAINS 2 NNE
69	38 39 00	78 43 00	AFL	POTOMAC	NORTH FORK SHENANDOAH	20[illegible]06	TIMBERVILLE 3 E

VIRGINIA NOAA NWS CLIMATOLOGICAL DATA STATIONS (Cont'd)

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
7	37 33 00	78 33 00	AFL	JAMES	MIDDLE JAMES-BUFFALO	2080203	BUCKINGHAM
70	37 38 00	78 56 00	AFL	JAMES	MIDDLE JAMES-BUFFALO	2080203	TYE RIVER 1 SE
71	38 54 00	77 13 00	AFL	POTOMAC	MIDDLE POTOMAC CATOCTIN	2070008	VIENNA DUMM LORING
72	37 45 00	77 03 00	BFL	YORK	MATTAPONI	2080105	WALKERTON 2 NW
73	38 41 00	77 46 00	AFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	WARRENTON 3 SE
74	37 59 00	76 46 00	BFL	RAPPAHANNOCK	LOWER RAPPAHANNOCK	2080104	WARSAW 2 NW
75	38 57 00	77 27 00	AFL	POTOMAC	MIDDLE POTOMAC CATOCTIN	2070008	WASH.DULLES WSO AP
76	38 51 00	77 02 00	BFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	WASH.NAT'L.WSCMO AP
77	38 16 00	79 19 00	AFL	JAMES	MAURY	2080202	W.AUGUSTA
78	37 31 00	76 50 00	BFL	YORK	PAMUNKEY	2080106	WEST POINT 2 SW
79	37 18 00	76 42 00	BFL	YORK	YORK	2080107	WILLIAMSBURG 2 N
8	37 44 00	79 21 00	AFL	JAMES	MAURY	2080202	BUENA VISTA
80	39 11 00	78 09 00	AFL	POTOMAC	CONOCOCHEAGUE-OPEQUON	2070004	WINCHESTER WINC
81	39 11 00	78 07 00	AFL	POTOMAC	CONOCOCHEAGUE-OPEQUON	2070004	WINCHESTER 3 ESE
82	37 20 00	77 39 00	AFL	JAMES	APPOMATTOX	2080207	WINTERPOCK 4 W
83	38 54 00	78 28 00	AFL	POTOMAC	NORTH FORK SHENANDOAH	2070006	WOODSTOCK 2 NE
9	38 02 00	78 31 00	AFL	JAMES	RIVANNA	2080204	CHARLOTTESVILLE 2W

VIRGINIA NOAA NWS CLIMATOLOGICAL DATA STATIONS



WEST VIRGINIA NOAA NWS CLIMATOLOGICAL DATA NETWORK

PROGRAM DESCRIPTION: West Virginia NOAA National Weather Service Climatological Network is part of a national network of climatological (weather) monitoring stations. There are 12 stations in the Chesapeake Bay basin in West Virginia (as of 1986) with at least temperature and precipitation records. There are no Local Climatological Data (LCD) stations.

PROGRAM OBJECTIVE: To provide a long-term climatological data base.

DATE INITIATED: Earliest 1894 [Varies for each station]

COORDINATING AGENCY:

National Oceanic and Atmospheric Administration
National Climatic Data Center
Federal Building
Asheville, North Carolina 28801

FUNDING AGENCY: National Oceanic and Atmospheric Administration

PARTICIPATING AGENCY: National Oceanic and Atmospheric Administration (NOAA)

INVESTIGATORS: N/A

PARAMETERS MEASURED:

While parameters vary, they include one or more of the following:

- Temperature
- Degree Days
- Precipitation
- Precipitation Type
- Wind Speed
- Wind Direction
- Barometric Pressure
- Sunshine
- Sky Cover
- Weather Type
- Evaporation
- Soil Temperature

STATIONS: There are 12 stations located in the Maryland portion of the Chesapeake Bay basin.

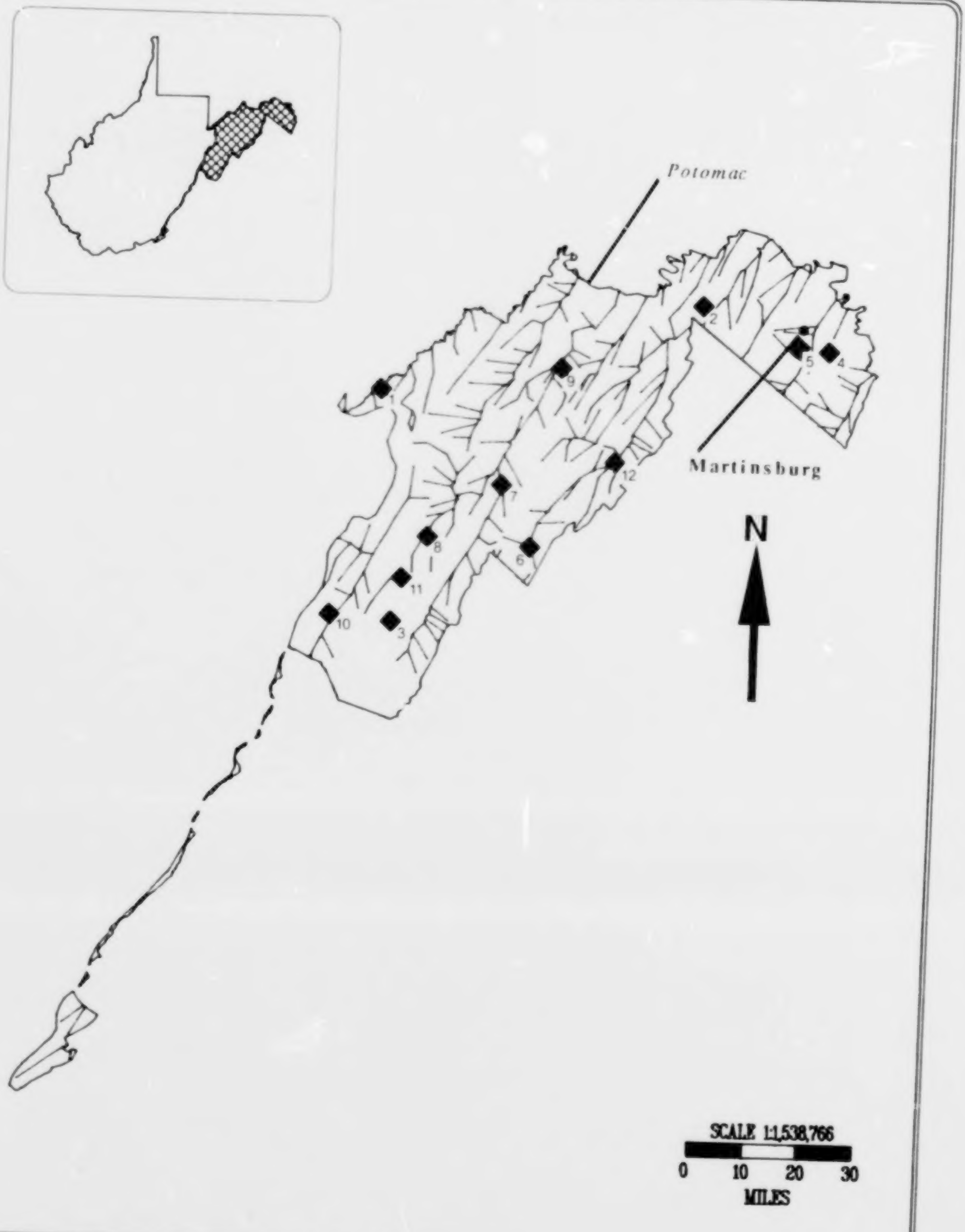
SAMPLE COLLECTION: Frequency of collection varies. Measurements are generally taken on a daily basis with calculations of daily, monthly, and annual maximums, minimums, averages and departures from normal. Totals for precipitation and precipitation types, evaporation and wind movement and number of days above and below maximum and minimum temperatures are also quantified. Seasonal heating-degree days, snowfall and cooling-degree days are also calculated.

PROGRAM INTEGRATION: These stations are part of a national network for climatological data.

WEST VIRGINIA NOAA NWS CLOMATOLOGICAL DATA STATIONS

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
1	39 16 00	79 22 00	AFL	POTOMAC	NORTH BRANCH POTOMAC	2070002	BAYARD
10	38 41 00	79 31 00	AFL	POTOMAC	SOUTH BRANCH POTOMAC	2070001	SPRUCE KNOB
11	38 47 00	79 17 00	AFL	POTOMAC	SOUTH BRANCH POTOMAC	2070001	UPPER TRACT
12	39 06 00	78 35 00	AFL	POTOMAC	CACAPON-TOWN	2070003	WARDENSVILLE RM FM.
2	39 30 00	78 18 00	AFL	POTOMAC	CACAPON-TOWN	2070003	CACAPON ST.PARK
3	38 40 00	79 19 00	AFL	POTOMAC	SOUTH BRANCH POTOMAC	2070001	FRANKLIN
4	39 23 00	77 53 00	AFL	POTOMAC	CONOCOCHEAGUE-OPEQUON	2070004	KEARNEYSVILLE WSO
5	39 24 00	77 59 00	AFL	POTOMAC	CONOCOCHEAGUE-OPEQUON	2070004	MARTINSBURG FAA AP
6	38 52 00	78 52 00	AFL	POTOMAC	CACAPON-TOWN	2070003	MATHIAS
7	39 02 00	78 58 00	AFL	POTOMAC	SOUTH BRANCH POTOMAC	2070001	MOOREFIELD 2 SSE
8	38 53 00	79 12 00	AFL	POTOMAC	SOUTH BRANCH POTOMAC	2070001	PETERSBURG 9 SSW
9	39 20 00	78 46 00	AFL	POTOMAC	SOUTH BRANCH POTOMAC	2070001	ROMNEY

WEST VIRGINIA NOAA NWS CLIMATOLOGICAL DATA STATIONS



NEW YORK AIR QUALITY MONITORING PROGRAM

PROGRAM DESCRIPTION: The New York Air Quality Monitoring Program consists of six stations within the Chesapeake Bay basin at which both continuous and manual (six-day) air monitoring is conducted depending on parameter. Not all parameters are measured at each station. Selected stations are part of the State and Local Air Monitoring (SLAM) program.

PROGRAM OBJECTIVE: To maintain a basic measure of effectiveness of the air pollution control program.

DATE INITIATED: 1956

COORDINATING AGENCY:

New York Department of Environmental Conservation
Bureau of Air Quality Surveillance
50 Wolf Road
Albany, New York 12233-3256

FUNDING AGENCY:

New York Department of Environmental Conservation
U.S. EPA Region II

PARTICIPATING AGENCY: New York Department of Environmental Conservation (NYDEC)

INVESTIGATORS:

Bureau Director	Don Gower	NYDEC

PARAMETERS:

Carbon Monoxide
Nitrogen Dioxide
Sulfur Dioxide
Ozone
Total Suspended Particulate
SSI
PM10
Lead

Note: All parameters are not measured at every station.

STATIONS: There are six stations located in the New York portion of the Chesapeake Bay basin.

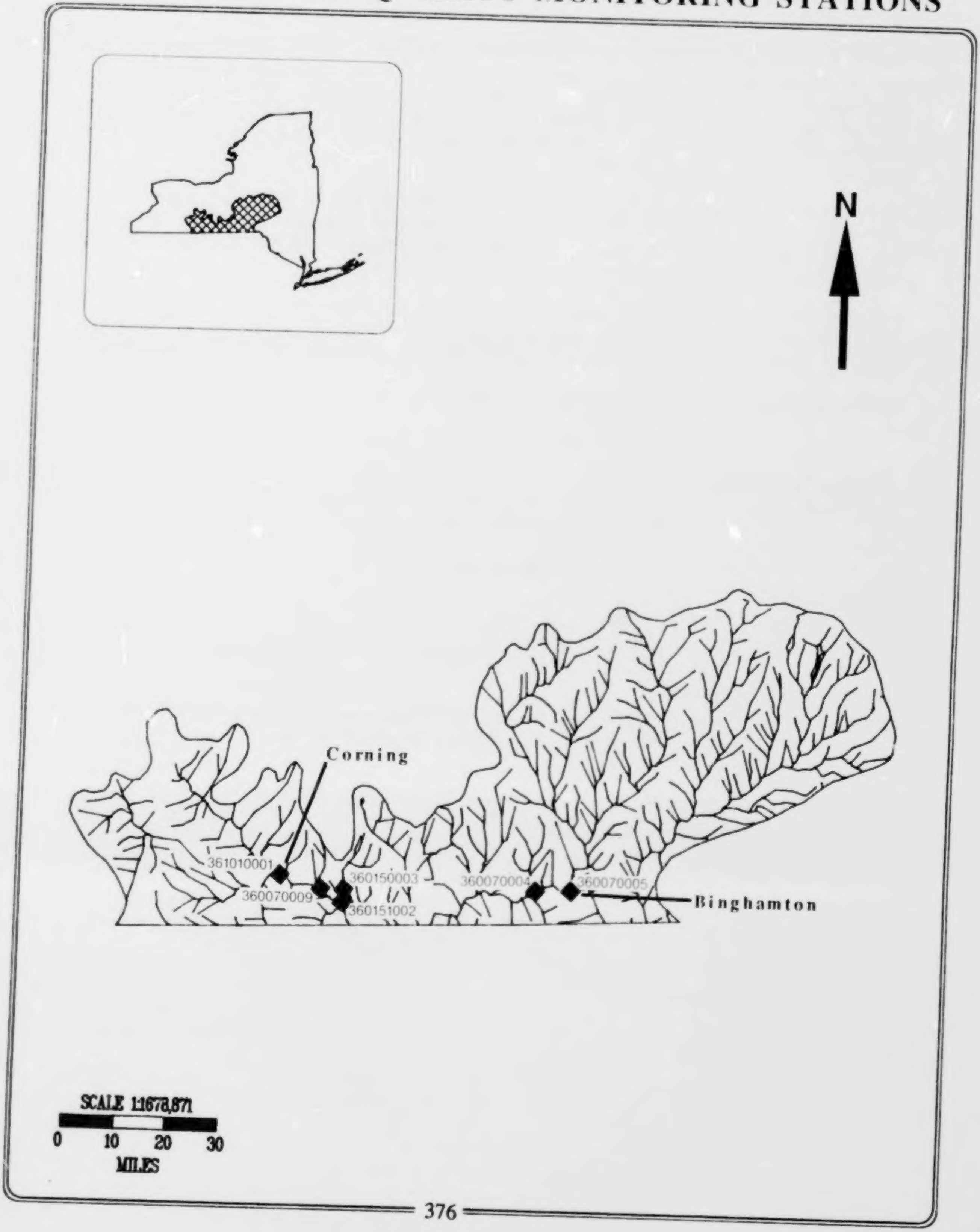
SAMPLE COLLECTION: Carbon monoxide, nitrogen dioxide, sulfur dioxide and ozone are measured on a continuous basis (1 hour averages, 24 per day) while lead, TSP and PM10 are measured every six days.

PROGRAM INTEGRATION: Selected stations in the New York Air Quality Monitoring Program are part of the EPA State and Local Air Monitoring (SLAM) program.

NEW YORK AIR QUALITY MONITORING STATIONS

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
360070004	42 05 54	76 03 03	AFL	SUSQUEHANNA	WEGO-WAPPASENING	2050103	JOHNSON MEMORIAL LIBRARY, ENDIC
360070005	42 06 18	75 55 35	AFL	SUSQUEHANNA	WEGO-WAPPASENING	2050103	CLINTON STREET, BINGHAMTON, NY
360070009	42 06 32	76 52 50	AFL	SUSQUEHANNA	CHEMUNG	2050105	COOLIDGE ELEM. SCHOOL, BINGHAMT
360150003	42 06 34	76 48 08	AFL	SUSQUEHANNA	CHEMUNG	2050105	SULLIVAN STREET, ELMIRA, NY
360151002	42 05 19	76 48 06	AFL	SUSQUEHANNA	CHEMUNG	2050105	WILLIAMS STREET, ELMIRA, NY
361010001	42 08 22	77 02 58	AFL	SUSQUEHANNA	CHEMUNG	2050105	CORNING HOSPITAL, CORNING, NY

NEW YORK AIR QUALITY MONITORING STATIONS



PENNSYLVANIA AIR QUALITY MONITORING PROGRAMS

PROGRAM DESCRIPTION: The Pennsylvania Air Quality Monitoring Programs consist of three air monitoring networks operated by the Pennsylvania Bureau of Air Quality Control. These three networks are the High Volume Network, the Pennsylvania Air Quality Surveillance System (PAQSS) and the Commonwealth of Pennsylvania Air Monitoring System (COPAMS). There are 40 air monitoring stations located within the Chesapeake Bay basin. Monitoring for each of these programs may occur at common stations.

Thirty-six of the 40 monitoring stations within the Chesapeake Bay basin are part of the EPA's State and Local Air Monitoring (SLAM) program by which EPA monitors specific criteria deemed important to the vicinity. They may also be a part of the National Air Monitoring (NAM) Program which is designed to monitor national trends for certain criteria.

PROGRAM OBJECTIVE: To judge compliance with air quality standards, to provide real time monitoring of air pollution episodes, to provide data for trend analysis, regulation evaluation and planning, and to provide information to the public on a daily basis concerning the quality of the air.

DATE INITIATED:
High Volume Network - 1972
COPAMS - 1974
PAQSS - 1978

COORDINATING AGENCY:
Pennsylvania Department of Environmental Resources
Bureau of Air Quality Control
P.O. Box 2063
Harrisburg, Pennsylvania 17120

FUNDING AGENCIES:
U.S. EPA Region III
Pennsylvania Department of Environmental Resources

PARTICIPATING AGENCIES:
Pennsylvania Department of Environmental Resources (PADER)
Allegheny County Health Department (ACHD)

INVESTIGATORS:

Air Pollution Control Engineer	Jeffrey Miller	PADER

PARAMETERS:

Carbon Monoxide
Nitrogen Oxides
Sulfur Dioxide
Ozone
Total Suspended Particulate
PM10
Settleable Particulate
Lead
Benzo-a-pyrene
Beryllium

Flourides
Hydrogen Sulfide
Methane
Nitrates
Sulfates
Total Organic Compounds
Non-methane Organic Compounds

Wind Speed
Wind Direction

Temperature Difference between 4 and 16 meters above the ground
Dew Point
Ambient Temperature
Soiling

Note: All parameters are not measured at every station.

STATIONS: There are 40 air monitoring stations located in the Pennsylvania portion of the Chesapeake Bay basin. Many of these serve as monitoring stations for more than one of the three Pennsylvania air quality networks.

SAMPLE COLLECTION: The High Volume Network consists of 91 stations throughout the state where samples are collected for total suspended particulate once every six days with selected filters analyzed for sulfates, nitrates, lead, beryllium and benzo-a-pyrene, and selected stations measuring for PM10. Through this network monthly samples are also taken at selected stations for settleable particulates by means of a dustfall jar.

The COPAMS network is a totally automatic, computer-controlled system which consists of 17 stations in the major population areas of the state connected by dedicated telephone lines to a central station in Harrisburg. Each station measures wind speed and direction, temperature difference between 4 and 16 meters above ground, dew point and ambient temperature, soiling, sulfur dioxide, ozone, nitrogen oxides and carbon monoxide. Soiling is determined by drawing ambient air through a filter tape for an hour and measuring the percent reduction in light transmittance through the tape with a photocell. Sulfur dioxide is monitored by a pulsed fluorescence monitor. Ozone is monitored by an analyzer using the ultraviolet photometric method. Nitrogen dioxide and other nitrogen oxides are monitored by chemiluminescent analyzers. Carbon monoxide is monitored by gas filter correlation non-dispersive infrared analyzers. Two stations also measure for methane, total organic compounds and non-methane organic compounds for a portion of the year.

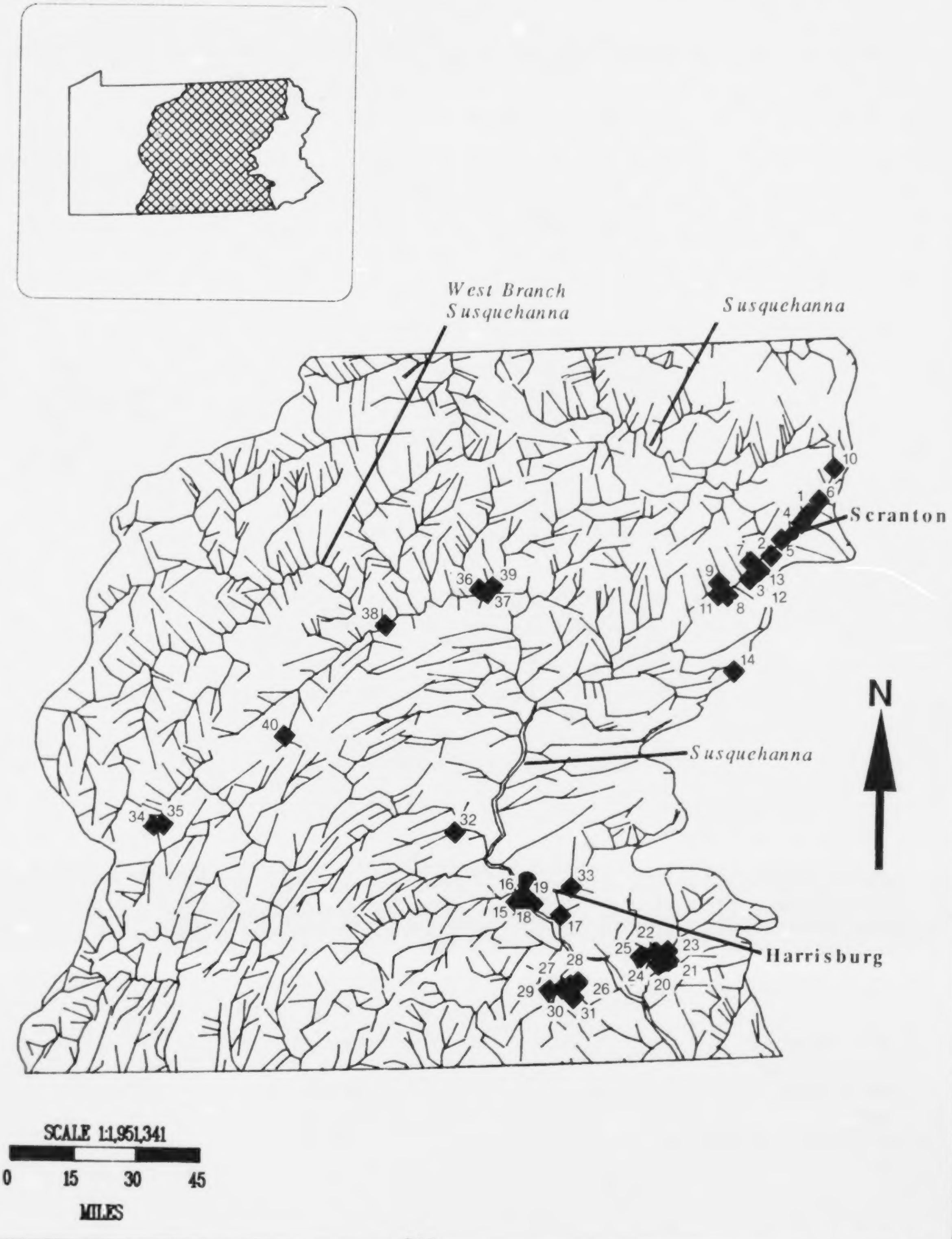
The PAQSS network consists of 22 microprocessor-controlled, stand-alone systems which measure wind speed and direction, sulfur dioxide, ozone, nitrogen oxides and carbon monoxide. The data are either recorded on magnetic tape on-site and manually retrieved on a biweekly basis, or retrieved on a daily basis via telephone lines.

PROGRAM INTEGRATION: Twenty-five stations are a part of the National Air Monitoring (NAM) Program which is designed to monitor national trends for certain criteria. Twenty Pennsylvania air monitoring stations are part of the EPA's State and Local Air Monitoring (SLAM) program by which EPA monitors specific criteria deemed important to the vicinity. Nine of the aforementioned stations are part of both of these networks.

PENNSYLVANIA AIR QUALITY MONITORING STATIONS

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
2-01	40 57 15	75 58 03	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-LACKAWANNA	2050107	SOCIAL SECURITY BUILDING, HAZLE
305	40 27 28	77 10 03	AFL	SUSQUEHANNA	LOWER JUNIATA	2050304	LITTLE BUFFALO STATE PARK, PERR
306	40 16 21	76 40 54	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA-SWATARA	2050305	HERSHEY FOODS TECH. CENTER, HER
307	40 30 56	78 24 04	AFL	SUSQUEHANNA	UPPER JUNIATA	2050302	ALTOONA POST OFFICE, ALTOONA CE
308	40 30 54	78 23 20	AFL	SUSQUEHANNA	UPPER JUNIATA	2050302	WARD TRUCKING CORPORATION, ALTO
401	41 14 23	77 00 58	AFL	SUSQUEHANNA	LOWER WEST BRANCH SUSQUEHANNA	2050206	SCHWAB BLDG., WILLIAMSPORT CENT
402	41 14 47	76 59 25	AFL	SUSQUEHANNA	LOWER WEST BRANCH SUSQUEHANNA	2050206	SYNTEX FABRICS INC., WILLIAMSPO
406	41 07 52	77 26 02	AFL	SUSQUEHANNA	MIDDLE WEST BRANCH SUSQUEHANNA	2050203	SEWAGE TREATMENT PLANT, LOCK HA
407	41 14 46	76 59 24	AFL	SUSQUEHANNA	LOWER WEST BRANCH SUSQUEHANNA	2050206	EAST THIRD AND RAILWAY, WILLIAM
408	40 47 38	77 51 35	AFL	SUSQUEHANNA	BALD EAGLE	2050204	MUNICIPAL PARKING GARAGE, STATE
H04	40 14 47	76 53 53	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA-SWATARA	2050305	U.S. POST OFFICE, LEMOYNE
H06	40 15 49	76 52 38	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA-SWATARA	2050305	U.S. POST OFFICE, HARRISBURG
H09	40 11 33	76 43 44	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA-SWATARA	2050305	MIDDLE FILTER PLANT, MIDDLETOWN
H11	40 14 40	76 50 50	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA-SWATARA	2050305	UPS DRIVE, HARRISBURG
H14	40 15 43	76 53 00	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA-SWATARA	2050305	FULTON BLDG (DER OFFICE), HARRI
L01	40 02 38	76 17 12	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	LINCOLN JR. HIGH SCHOOL, LANCAS
L04	40 03 20	76 18 28	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	HOSTTOWN HOTEL, LANCASTER NORTH
L05	40 04 10	76 19 58	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	ALUMAX, INC. LANCASTER WEST
L09	40 04 08	76 17 35	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	SERUMATION CORP, MANHEIM TOWNSH
L10	40 02 24	76 18 28	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	HAMILTON BANK, LANCASTER CENTRA
L11	40 03 03	76 23 39	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	TURKEY HILL MARKETS, EAST HEMPF
S01	41 26 35	75 37 28	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-LACKAWANNA	2050107	GEORGE ST., PENN STATE CAMPUS
S04	41 19 18	75 47 28	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-LACKAWANNA	2050107	CITY HALL, PITTSTON
S07	41 14 57	75 52 36	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-LACKAWANNA	2050107	KIRBY HEALTH CENTER, WILKES BAR
S15	41 24 35	75 39 30	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-LACKAWANNA	2050107	JEWISH COMMUNITY CENTER, SCRANT
S18	41 22 18	75 44 33	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-LACKAWANNA	2050107	OLD FORGE HIGH SCHOOL, OLD FORG
S20	41 29 08	75 34 46	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-LACKAWANNA	2050107	VALLEY VIEW ELEMENTARY CENTER,
S22	41 17 42	75 52 12	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-LACKAWANNA	2050107	PUMPING STATION, SWOYERSVILLE
S23	41 12 08	75 59 28	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-LACKAWANNA	2050107	NANTICOKE HIGH SCHOOL, NANTICOK
S24	41 13 18	76 00 57	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-LACKAWANNA	2050107	TILBURY VOLUNTEER FIRE COMAPANY
S25	41 34 14	75 30 41	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-LACKAWANNA	2050107	ARMY RESERVE MAINTENANCE SHED,
S26	41 12 37	76 00 15	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-LACKAWANNA	2050107	LOWER BROADWAY, NANTICOKE
S27	41 15 00	75 52 50	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-LACKAWANNA	2050107	NORTH RIVER STREET, WILKES BARR
S28	41 15 56	75 50 48	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-LACKAWANNA	2050107	CHILWICK AND WASHINGTON, WILKES
Y01	39 57 56	76 41 57	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	DAVIS JR. HIGH SCHOOL, YORK EAS
Y02	39 57 50	76 43 22	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	J.E. BAKER CO, YORK CENTRAL
Y06	39 58 48	76 40 16	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	CATERPILLAR TRACTOR CO, SPRINGE
Y07	39 57 16	76 45 56	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	WEST YORK BOROUGH BLDG, WEST YO
Y08	39 55 48	76 41 06	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	YORK CO. VO-TECH SCHOOL, YORK T
Y09	39 57 51	76 41 33	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA	2050306	ALLEGHENY PEPSI-COLA, YORK EAST

PENNSYLVANIA AIR QUALITY MONITORING STATIONS



MARYLAND AIR SURVEILLANCE NETWORK

PROGRAM DESCRIPTION: The Maryland Air Surveillance Network consists of 55 stations located within the Chesapeake Bay Basin. Air quality data is collected for both criteria air pollutants (particulate matter, sulfur dioxide, carbon monoxide, ozone, nitrogen dioxide and lead) and for air pollutants for which air quality standards do not exist. Monitoring is performed on either a continuous or a 6-day basis. Selected stations are part of the State and Local Air Monitoring (SLAM) program and/or the National Air Monitoring (NAM) program.

PROGRAM OBJECTIVE: To provide a daily air quality index to the public based on current levels of criteria pollutants. To assist other environmental agencies with enforcement activities. To respond to chemical emergencies (determine safe levels to return to an area). To determine compliance with air quality standards, and to perform long-term studies of non-criteria pollutants.

DATE INITIATED: 1970

COORDINATING AGENCY:

Maryland Department of the Environment
Air Management Administration
Division of Air Monitoring
2500 Broening Highway
Baltimore, Maryland 21224

FUNDING AGENCIES:

U.S. EPA Region III
Maryland Department of the Environment

PARTICIPATING AGENCIES:

Maryland Department of the Environment (MDE)
Allegany County Health Department (ACHD)
Frederick County Health Department (FCHD)
Cecil County Health Department (CCHD)
Montgomery County Department of Environmental Protection (MCDEP)
Prince George's County Health Department (PGCHD)
Anne Arundel County Health Department (AACHD)

INVESTIGATORS:

Project Officer	Robert J. O'Melia	MDE
Technical Project Coordinator	Walter Cooney	MDE
Technical Project Coordinator	Richard Wies	MDE
Quality Assurance Coordinator	Leslie Sipes	MDE
Data Management	Stephen Kiel	MDE

PARAMETERS:

Carbon Monoxide
Nitrogen Dioxide
Sulfur Dioxide
Ozone
Total Suspended Particulate
PM10
Lead
Nitrate
Sulfate
Arsenic

Benzo-a-Pyrene
Chromium
Benzene
Carbon Tetrachloride
Chloroform

Tetrachloroethylene

Wind Speed
Wind Direction

Note: All parameters are not measured at every station.

STATIONS: There are 55 stations located within the Maryland portion of the Chesapeake Bay.

SAMPLE COLLECTION: Gaseous pollutants are measured at 22 locations on a continuous basis (24 hours a day) while particulate matter is collected every six days at 35 stations. At a selected number of these locations, particulate matter is analyzed for sulfate, nitrate, lead, chromium, arsenic and benzo-a-pyrene.

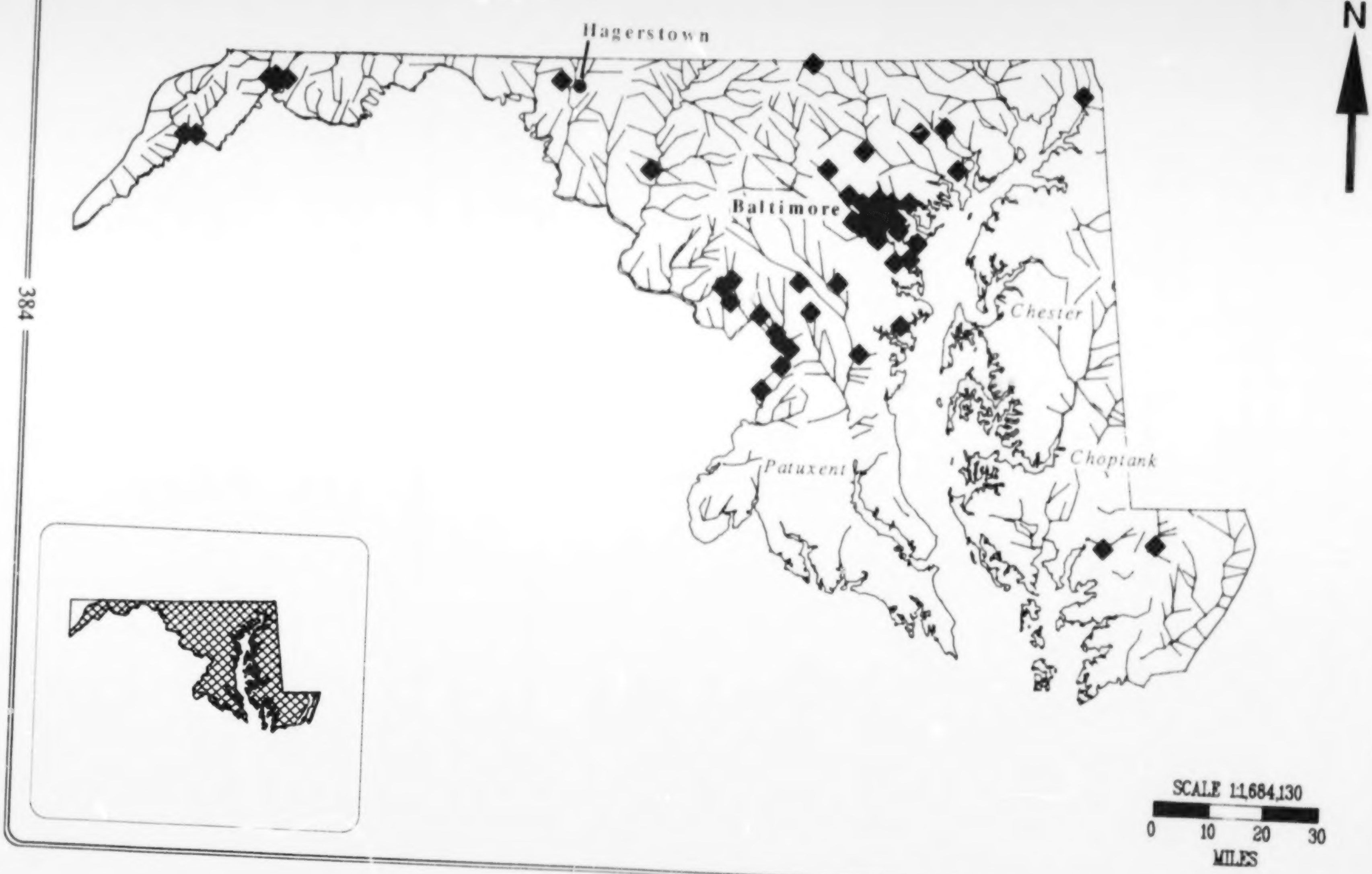
A 24-hour sample is collected every six days for hydrocarbon and chlorinated hydrocarbon analysis. These samples are collected on multisorbent tubes and analyzed on a gas chromatograph equipped with a mass selective detector.

PROGRAM INTEGRATION: Selected stations in the Maryland Air Surveillance Network are part of the EPA National Air Monitoring (NAM) program, in which specific criteria are monitored in order to determine national trends, and/or a part of the EPA State and Local Air Monitoring (SLAM) program, by which monitoring is performed on specific criteria deemed important to the vicinity. In addition, MDE participates in the Metropolitan Washington Council of Government's Air Quality Index which reports daily on air pollution levels in relation to federal air quality standards in the Washington metropolitan area.

MARYLAND AIR SURVEILLANCE STATIONS

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
1	39 29 32	79 04 24	AFL	POTOMAC	NORTH BRANCH POTOMAC	2070002	BLOOMINGTON
12	39 39 38	77 43 55	AFL	POTOMAC	CONOCOCHEAGUE-OPEQUON	2070004	WESTEREN HTS.
17	38 58 55	76 30 17	BFL	WEST CHESAPEAKE	SEVERN	2060004	ANNAPLOIS
18	39 24 37	77 24 13	AFL	POTOMAC	MONOCACY	2070009	FRED. PWD
20	39 10 11	76 28 27	WT-5	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	GLEN BURNIE
22	39 06 05	76 43 40	BFL	PATUXENT	PATUXENT	2060006	FORT MEADE
23	39 09 36	76 31 05	BFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	RIVIERA BEACH
24	38 54 10	76 39 10	BFL	PATUXENT	PATUXENT	2060006	DAVIDSONVILLE
27	39 24 21	76 45 55	AFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	GARRISON
28	39 18 38	76 28 29	BFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	ESSEX
29	39 27 40	76 37 52	AFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	PADONIA
3	39 39 09	78 45 46	AFL	POTOMAC	NORTH BRANCH POTOMAC	2070002	CUMBERLAND HALL
31	39 30 54	76 25 52	AFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	PERRY HALL
32	39 14 42	76 30 23	BFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	DUNDALK
33	39 13 13	76 26 56	BFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	CHES. TERR.
34	39 14 38	76 30 32	BFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	SOLLERS PT.
35	39 17 28	76 36 35	BFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	FDHQ
36	39 17 54	76 35 18	BFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	OLD TOWN
37	39 19 57	76 38 30	AFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	ALLEGANY PEPSI
38	39 20 26	76 34 56	AFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	NE POLICE
39	39 20 41	76 41 10	AFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	NW POLICE
4	39 38 56	78 46 18	AFL	POTOMAC	NORTH BRANCH POTOMAC	2070002	BLIND WORKSHOP
40	39 17 15	76 32 53	BFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	SE POLICE
41	39 16 40	76 39 50	BFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	SW POLICE
42	39 14 12	76 35 04	BFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	SUN & CHES.
43	39 17 26	76 36 42	BFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	CBD I
44	39 13 54	76 34 28	BFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	FAIRFIELD PMC
45	39 26 37	77 02 33	AFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	SO. CARROLL
48	39 18 53	76 36 51	AFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	GUILFORD
49	39 16 37	76 33 18	BFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	CANTON REC.
5	39 38 42	78 45 47	AFL	POTOMAC	NORTH BRANCH POTOMAC	2070002	CUMBERLAND I
50	39 15 52	76 34 50	BFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	FT. MCHENRY
51	39 16 34	76 31 50	BFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	HOLABIRD ELEM.
57	39 15 38	76 38 08	BFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	WESTPORT
54	39 18 43	76 32 27	BFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	I-95
55	39 32 10	76 20 55	AFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	BEL AIR
56	39 24 35	76 17 50	BFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	EDGEWOOD
60	39 05 29	77 08 13	AFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	MARYVALE ELEM.
61	39 00 43	77 00 05	AFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	EASTERN JR. HI
64	39 03 11	77 07 00	AFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	ROCKPIKE
65	39 06 48	77 06 26	AFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	ROCKVILLE
67	38 57 35	76 56 45	BFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	HYATTSVILLE
69	38 48 25	76 59 45	BFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	OXON HILL
7	39 38 50	78 43 57	AFL	POTOMAC	NORTH BRANCH POTOMAC	2070002	CUMBERLAND 2
[illegible]	39 06 15	76 52 01	BFL	PATUXENT	PATUXENT	2060006	LAUREL
72	38 55 27	76 54 15	BFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	CHEVERLY
73	38 52 12	76 55 55	BFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	SUITLAND
74	39 01 12	76 49 40	BFL	PATUXENT	PATUXENT	2060006	GREENBLET
75	38 56 23	76 56 07	BFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	BALDENSBURG
77	38 04 13	76 27 32	LE-2	POTOMAC	LOWER POTOMAC	2070011	SOLOMONS
80	39 42 38	76 48 43	AFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	SO. MD. POX
81	39 36 30	75 49 45	BFL	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	ELKTON
85	38 21 45	75 36 13	BFL	EASTERN SHORE	BLACKWATER-WICOMICO	2060007	SALISBURY
86	38 21 11	75 47 27	BFL	EASTERN SHORE	NANTICOKE	2060008	EASTERN SHORE
9	39 29 19	79 02 32	AFL	POTOMAC	NORTH BRANCH POTOMAC	2070002	WESTERNPORT

MARYLAND AIR SURVEILLANCE STATIONS



DELAWARE AIR QUALITY MONITORING PROGRAM

PROGRAM DESCRIPTION: The Delaware Air Quality Monitoring Program is conducted at 14 stations throughout the state, with two stations in the Chesapeake Bay basin. The parameters measured vary from station to station depending on the objectives for each site.

PROGRAM OBJECTIVE: Monitoring is being carried out in accordance with the Clean Air Act to determine ambient air quality and detect any deterioration in air quality

DATE INITIATED: Late 1960s

COORDINATING AGENCY:

Delaware Department of Natural Resources and Environmental Control
Division of Air and Waste Management
89 Kings Highway
P.O. Box 1401
Dover, Delaware 19903

FUNDING AGENCIES:

Delaware Department of Natural Resources and Environmental Control
U.S. EPA Region III

PARTICIPATING AGENCIES:

Delaware Department of Natural Resources and Environmental Control (DNREC)

INVESTIGATORS:

Program Administrator	Robert R. French	DNREC
Program Manager	Joseph Kliment	DNREC

PARAMETERS:

Seaford:
Total Suspended Particulates
Sulfur Dioxide
Ozone
Gross Radiation

Lums Pond:
Ozone
Pollen
Precipitation

STATIONS: There are two air quality monitoring stations located within the Delaware portion of the Chesapeake Bay basin.

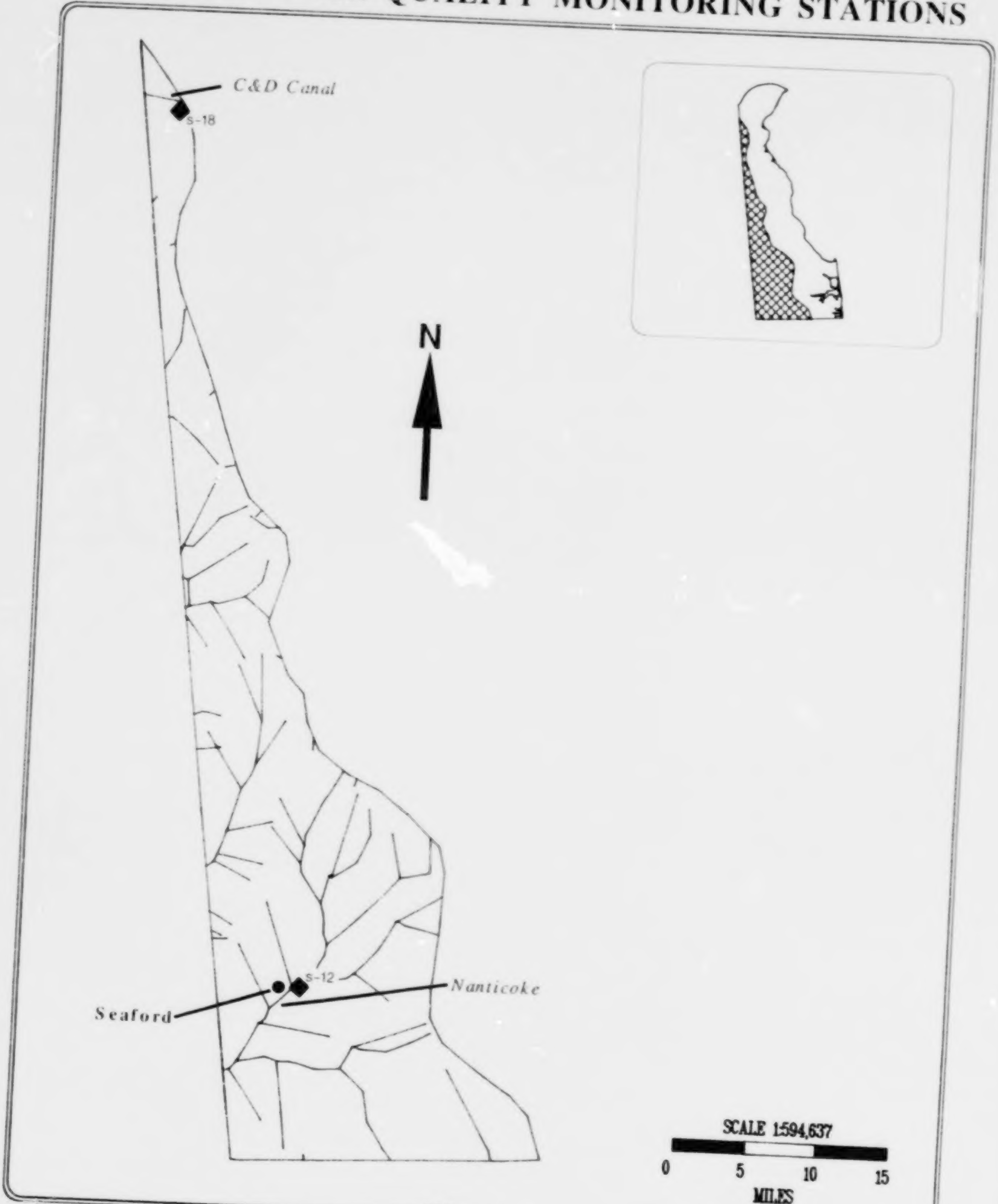
SAMPLE COLLECTION: Sulfur dioxide is measured on a continuous basis and ozone from April to October. Pollen measurements are taken during the months of April, May, June, August and September. Gross radiation at the Seaford Water Tower is measured with a thermal luminescent dosimeter.

PROGRAM INTEGRATION: Selected stations are part of the EPA State and Local Air Monitoring (SLAM) and National Air Monitoring (NAM) programs.

DELAWARE AIR QUALITY MONITORING STATIONS

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
S-12	38 38 30	75 35 50	BFL	EASTERN SHORE	NANTICOKE	2060008	SEAFORD WATER TOWER, SEAFORD
S-18	39 33 48	75 44 00	BFL	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	LUMS POND STATE PARK, NEWARK

DELAWARE AIR QUALITY MONITORING STATIONS



DISTRICT OF COLUMBIA AIR QUALITY MONITORING PROGRAM

PROGRAM DESCRIPTION: The District of Columbia Air Quality Monitoring Program consists of nine stations, at which selected parameters are measured on a continuous basis with others being measured every six days. Not all parameters are measured at all stations. Seven of the air monitoring stations are part of the National Air Monitoring (NAM) program. No acid precipitation monitoring is performed by the District.

PROGRAM OBJECTIVE: To provide a long-term data base for air contaminants in the District of Columbia.

DATE INITIATED: 1980

COORDINATING AGENCY:

District of Columbia Department of Consumer and Regulatory Affairs
Environmental Control Division
Air Branch
5010 Overlook Avenue, SW
Washington, D.C. 20032

FUNDING AGENCY: U.S. EPA Region III

PARTICIPATING AGENCY: D.C. Department of Consumer and Regulatory Affairs (DCDCRA)

INVESTIGATORS:

Air Branch Chief	Joseph Nwude	DCDCRA
Environmental Specialist	David Krask	DCDCRA

PARAMETERS:

Carbon Monoxide
Nitrogen Dioxide
Sulfur Dioxide
Ozone
Total Suspended Particles
SSI
PM10
Lead

Note: All parameters are not measured at every station.

STATIONS: There are nine air monitoring stations located throughout the District of Columbia.

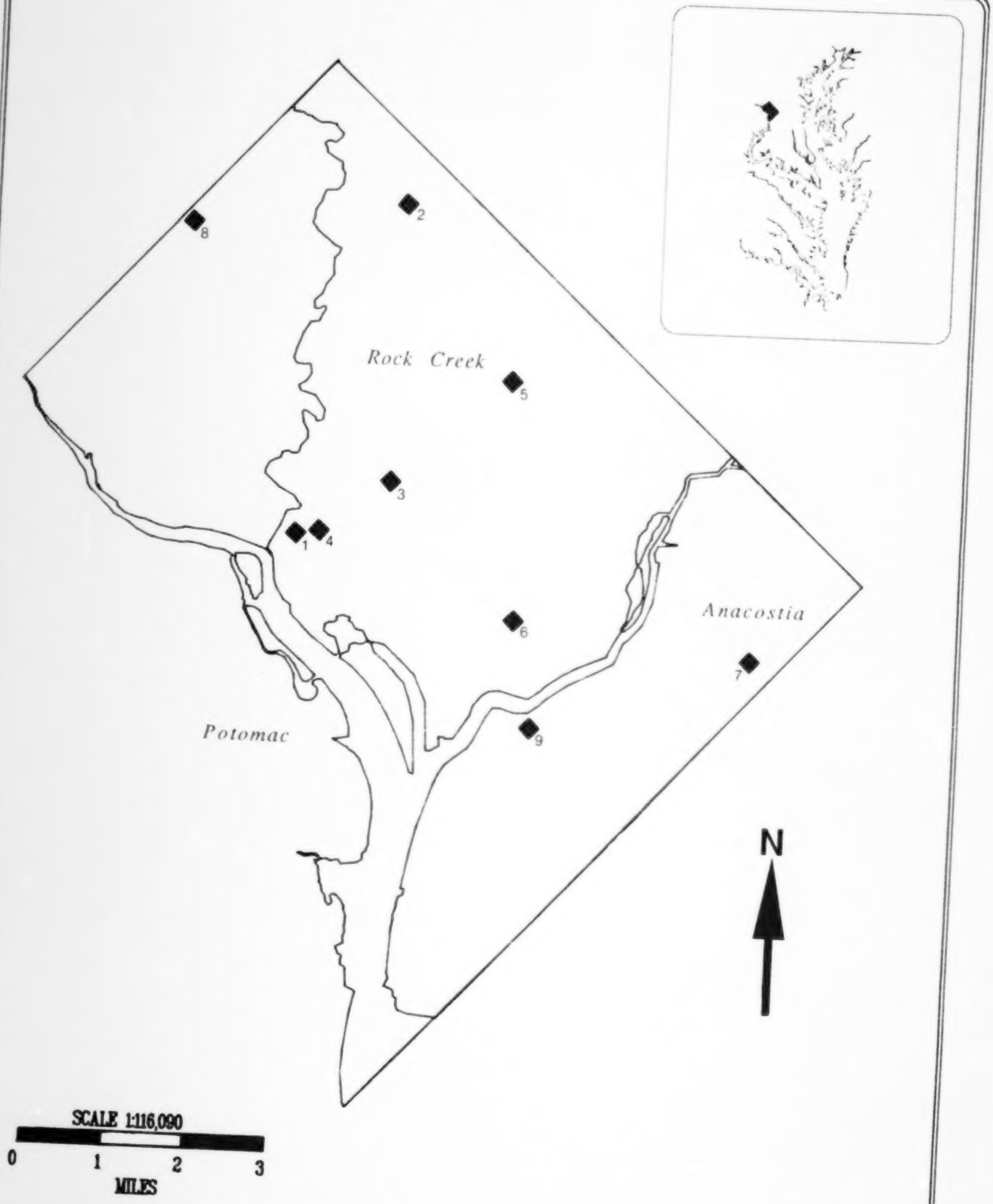
SAMPLE COLLECTION: Data for carbon monoxide, nitrogen dioxide, sulfur dioxide and ozone are collected continuously, with measurements taken for TSP, SSI, PM10 and lead once every 6 days. Not all parameters are measured at every station. All parameters are measured at the West End Library which is the main site; NO2 and ozone are measured at Takoma School; SO, TSP and PM10 are measured at the Garrison School; CO only is measured at C&P Telephone; TSP only is measured at Catholic University, Capitol East Recreation Center and Davis School; TSP and lead are measured at the Chevy Chase Library; and lead only is measured at Property division.

PROGRAM INTEGRATION: Seven of the air monitoring stations are part of the National Air Monitoring (NAM) program which is designed to monitor national trends for certain criteria. In addition, DCDCRA participates in the Metropolitan Washington Council of Government's Air Quality Index which reports daily on air pollution levels in relation to federal air quality standards in the Washington metropolitan area.

DISTRICT OF COLUMBIA AIR QUALITY MONITORING STATIONS

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
1	38 54 15	77 03 05	AFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	WEST END LIBRARY, NW
2	38 58 05	77 01 26	AFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	TAKOMA SCHOOL, NW
3	38 54 50	77 01 40	BFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	GARRISON SCHOOL, NW
4	38 54 15	77 02 45	BFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	C&P TELEPHONE, NW
5	38 56 00	76 59 50	BFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	CATHOLIC UNIVERSITY, NE
6	38 53 12	76 59 50	BFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	CAPITOL EAST RECREATION CENTER,
7	38 52 41	76 56 18	BFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	DAVIS SCHOOL, SE
8	38 57 53	77 04 38	AFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	CHEVY CHASE LIBRARY, NW
9	38 51 54	76 59 35	BFL	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	PROPERTY DIVISION, SE

DISTRICT OF COLUMBIA AIR QUALITY MONITORING STATIONS



VIRGINIA AIR QUALITY MONITORING PROGRAM

PROGRAM DESCRIPTION: The Virginia Air Quality Monitoring Program consists of 13 stations in the Virginia portion of the Chesapeake Bay basin. These stations are part of the nationwide State and Local Air Monitoring (SLAM) network.

PROGRAM OBJECTIVE: To measure air quality in the state of Virginia in an effort to protect public health and welfare.

DATE INITIATED: 1970

COORDINATING AGENCY:

Virginia Department of Air Pollution Control
Ninth Street Office Building, Room 801
P.O. Box 10089
Richmond, Virginia 23240

FUNDING AGENCIES:

U.S. EPA Region III
Virginia Department of Air Pollution Control

PARTICIPATING AGENCY: Virginia Department of Air Pollution Control (VDAPC)

INVESTIGATORS:

Staff Meteorologist	Dan Salkovitz	VDAPC

PARAMETERS:

Carbon Monoxide
Nitrogen Dioxide
Sulfur Dioxide
Ozone
Total Suspended Particulate
PM-10
Lead

STATIONS: There are 13 stations in the Virginia portion of the Chesapeake Bay Basin.

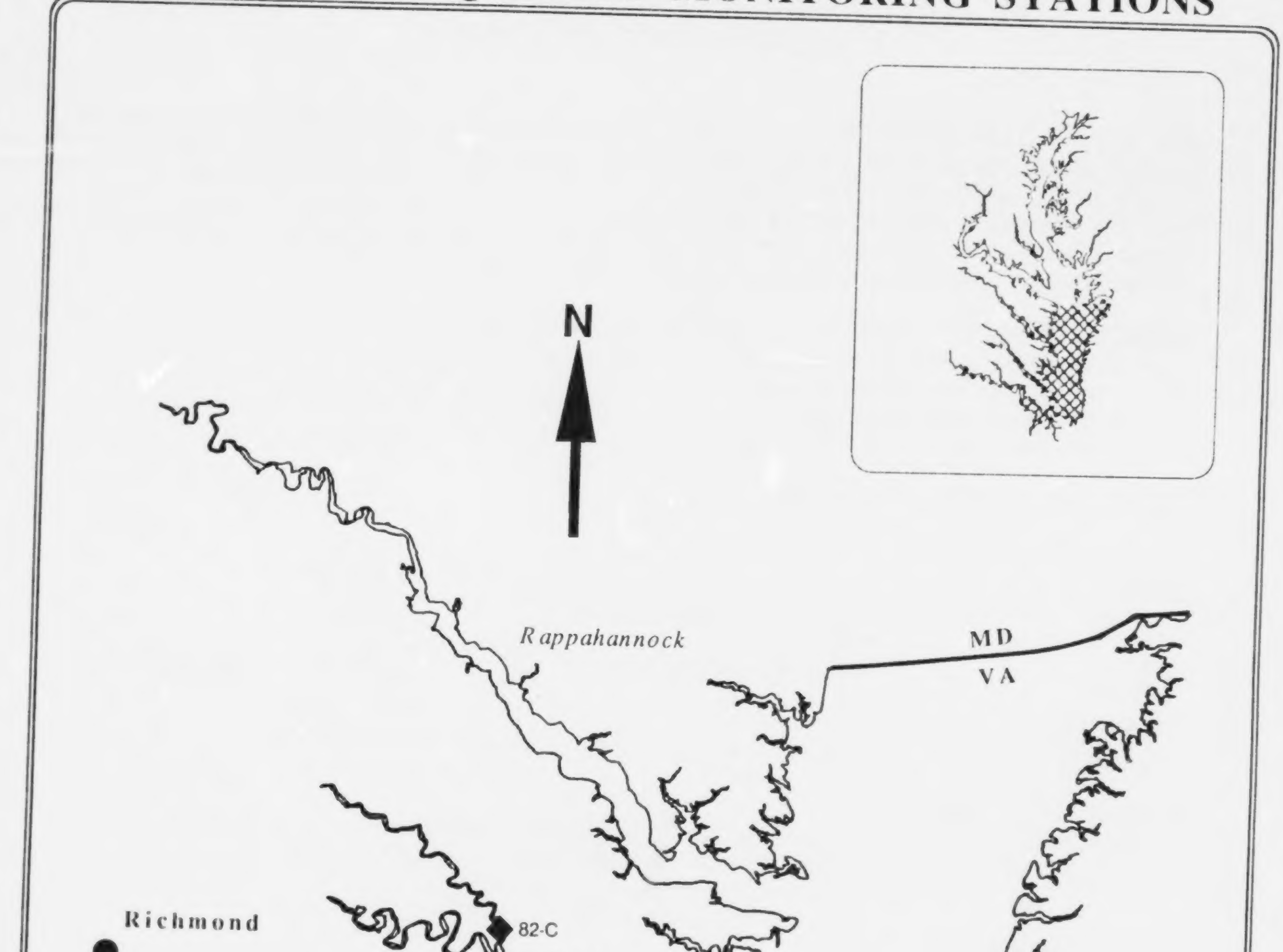
SAMPLE COLLECTION: All gases are measured with continuous monitors which operate on electronic and photometric principles. TSP and PM10 are analyzed from filters collected every six days. Not all parameters are measured at each station.

PROGRAM INTEGRATION: The air monitoring stations are part of the EPA's State and Local Air Monitoring (SLAM) network through which specific criteria deemed important to the vicinity are monitored. In addition, Fairfax and Alexandria Counties participate in the Metropolitan Washington Council of Government's Air Quality Index which reports daily on air pollution levels in relation to federal air quality standards in the Washington metropolitan area.

VIRGINIA AIR QUALITY MONITORING STATIONS

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
176-P	36 48 00	76 16 21	BFL	JAMES	LYNNHAVEN-POQUOSON	2080108	CHESAPEAKE - OSCAR SMITH HIGH S
179-C	37 00 05	76 23 57	BFL	JAMES	LOWER JAMES	2080206	HAMPTON COUNTY - VIRGINIA SCHOO
180-N	37 05 42	76 29 16	BFL	JAMES	LOWER JAMES	2080206	NEWPORT NEWS - JEFFERSON AVENUE
181-F	36 53 09	76 18 08	BFL	JAMES	LYNNHAVEN-POQUOSON	2080108	NORFOLK - OLD DOMINION UNIVERSI
181-S	36 50 50	76 17 14	BFL	JAMES	LYNNHAVEN-POQUOSON	2080108	NORFOLK - FIRE STATION
181-V	36 51 07	76 16 45	BFL	JAMES	LYNNHAVEN-POQUOSON	2080108	NORFOLK - POST OFFICE
181-X	36 50 56	76 18 19	LE-5	JAMES	LOWER JAMES	2080206	NORFOLK - NORFOLK STATE UNIVERS
182-H	36 48 49	76 22 50	BFL	JAMES	LYNNHAVEN-POQUOSON	2080108	PORTSMOUTH - MANOR HIGH SCHOOL
183-C	36 43 17	76 34 21	BFL	JAMES	HAMPTON ROADS	2080208	SUFFOLK - WASHINGTON SCHOOL
183-E	36 54 04	76 26 17	BFL	JAMES	LYNNHAVEN-POQUOSON	2080108	SUFFOLK - TIDEWATER COMMUNITY C
82-C	37 33 28	76 47 45	BFL	YORK	MATTAPONI	2080105	WEST POINT - ELEMENTARY SCHOOL
89-F	37 07 29	76 27 04	BFL	JAMES	LYNNHAVEN-POQUOSON	2080108	YORK COUNTY - TABB SCHOOL
95-A	37 17 24	75 58 18	BFL	EASTERN SHORE	POCOMOKE	2060009	CHERITON - POST OFFICE

VIRGINIA AIR QUALITY MONITORING STATIONS



PENNSYLVANIA ATMOSPHERIC DEPOSITION MONITORING PROGRAM

PROGRAM DESCRIPTION: The Pennsylvania Atmospheric Deposition Monitoring Program consists of nine stations located in the Chesapeake Bay basin and 16 acid precipitation monitoring stations throughout the state. Two of the nine stations are part of the National Atmospheric Deposition Program/ National Trends Network (NADP/NTN) and one station is run by the National Park Service. Although coordinated by the Pennsylvania Department of Environmental Resources, monitoring at many stations is conducted by the Pennsylvania State University.

PROGRAM OBJECTIVE: To determine the magnitude and distribution of atmospheric deposition in Pennsylvania and to assess its environmental impacts. To determine temporal trends in the chemistry of Pennsylvania's precipitation, to evaluate the influence of local emissions and variations in precipitation amounts on wet deposition patterns, and to determine the optimum number of sites needed to define spatial variability in atmospheric deposition.

DATE INITIATED: November 1981

COORDINATING AGENCY:

Pennsylvania Department of Environmental Resources
Bureau of Air Quality Control
P.O. Box 2063
Harrisburg, Pennsylvania 17120

FUNDING AGENCY: Pennsylvania Department of Environmental Resources

PARTICIPATING AGENCIES:

Pennsylvania Department of Environmental Resources (PADER)
Environmental Resources Research Institute, The Pennsylvania State University (ERRI)
National Park Service (NPS)

INVESTIGATORS:

Air Management Planning Section Chief	J. Wick Havens	PADER
Principal Investigator	James Lynch	ERRI

PARAMETERS:

pH
Specific Conductance
Nitrate
Ammonium
Sulfate
Chloride
Total Acidity
Calcium
Magnesium
Potassium
Sodium
Aluminum*
Lead*
Zinc*

* These parameters measured only at Parker Dam and Little Pine State Parks.

STATIONS: There are nine stations located in the Pennsylvania portion of the Chesapeake Bay basin.

SAMPLE COLLECTION: Weekly samples (Tuesday to Tuesday) are collected at each station with an Aerochem metric wet/dry precipitation collector. Recording and standard nonrecording rain gauges are installed at each site with each recording rain gauge equipped with a timer/chart recorder keyed to the sampling interval of one week. The opening and closing of the sampler is determined by an event recorder mounted on the recording rain gauge. The nonrecording rain gauges are used to determine the total amount of precipitation.

Sample buckets are collected each Tuesday at 9:00 AM unless it is raining or snowing in which case they are removed when the precipitation ceases or, at the latest, at the end of the working day on Tuesday. The entire collection bucket is then shipped to the Environmental Resources Research Institute or, in the case of NADP/NTN samples, to the Central Analytical Laboratory, Illinois State Water Survey in Champaign, Illinois.

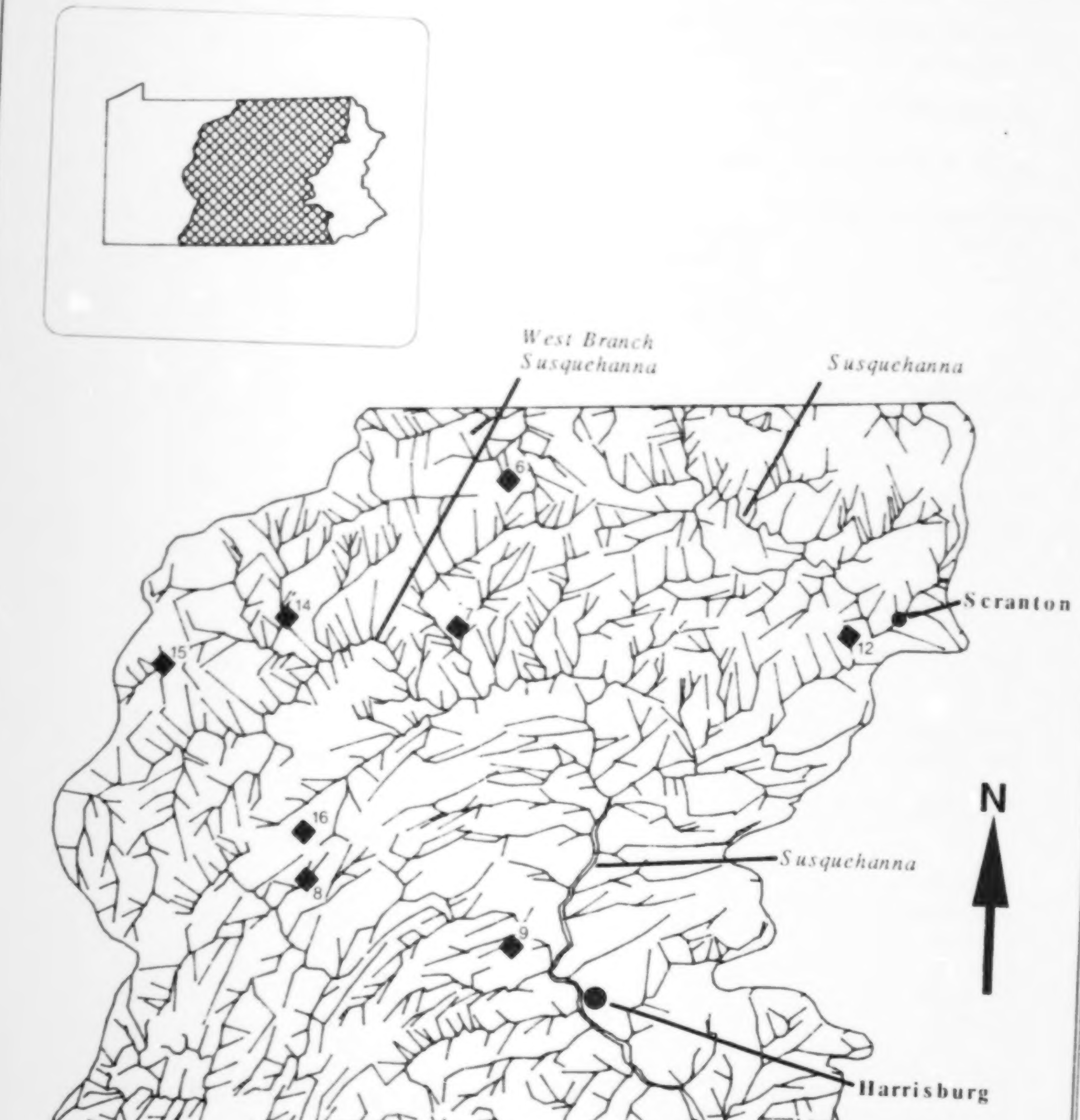
In addition to the precipitation samples, dry deposition samples are collected at each site every eight weeks and shipped to the aforementioned water quality labs for analysis. One liter of deionized water is added to each sample, which is then left to equilibrate for 24 hours and analyzed using the same procedures used for precipitation samples.

PROGRAM INTEGRATION: Two stations within the Pennsylvania portion of the Chesapeake Bay basin are part of the National Atmospheric Deposition Program/ National Trends Network (NADP/NTN), and one station is run by the National Park Service.

PENNSYLVANIA ATMOSPHERIC DEPOSITION MONITORING STATIONS

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
10	39 47 00	77 16 00	AFL	POTOMAC	MONOCACY	2070009	GETTYSBURG NATIONAL PARK
12	41 20 00	75 53 00	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-LACKAWANNA	2050107	FRANCES SLOCUM STATE PARK
14	41 24 00	78 01 00	AFL	SUSQUEHANNA	SINNEMAHONING	2050202	SINNEMAHONING STATE PARK
15	41 16 00	78 30 00	AFL	SUSQUEHANNA	SINNEMAHONING	2050202	PARKER DAM STATE PARK
16	40 47 00	77 57 00	AFL	SUSQUEHANNA	UPPER JUNIATA	2050302	PENN STATE UNIVERSITY - NADP
6	41 48 00	77 11 00	AFL	SUSQUEHANNA	TIOGA	2050104	HILLS CREEK STATE PARK
7	41 22 00	77 22 00	AFL	SUSQUEHANNA	PINE	2050205	LITTLE PINE STATE PARK
8	40 39 00	77 56 00	AFL	SUSQUEHANNA	UPPER JUNIATA	2050302	LEADING RIDGE - NADP
9	40 27 00	77 10 00	AFL	SUSQUEHANNA	LOWER JUNIATA	2050304	LITTLE BUFFALO STATE PARK

PENNSYLVANIA ATMOSPHERIC DEPOSITION MONITORING STATIONS



MARYLAND ACID PRECIPITATION MONITORING PROGRAM

PROGRAM DESCRIPTION: The Maryland Acid Precipitation Monitoring Program consists of long-term monitoring on a weekly basis at two stations.

PROGRAM OBJECTIVE: To provide a long-term data base for acid deposition.

DATE INITIATED: August 1984

COORDINATING AGENCY:

Maryland Department of the Environment
Air Management Administration
Division of Air Monitoring
2500 Broening Highway
Baltimore, Maryland 21224

FUNDING AGENCIES:

U.S. EPA Region III
Maryland Department of the Environment

PARTICIPATING AGENCIES:

Maryland Department of the Environment (MDE)
Allegany County Health Department (ACHD)

INVESTIGATORS:

Project Officer	Robert J. O'Melia	MDE
Technical Project Coordinator	Walter Cooney	MDE
Technical Project Coordinator	Richard Wies	MDE
Quality Assurance Coordinator	Leslie Sipes	MDE
Data Management	Stephen Kiel	MDE

PARAMETERS:

pH
Conductivity
Ammonium
Bromide
Calcium
Chloride
Flouride
Magnesium
Nitrate
Nitrogen Dioxide
Phosphate
Potassium
Sodium
Sulfate

STATIONS: There are two monitoring stations located in the Maryland portion of the Chesapeake Bay basin; one of these is in Rocky Gap State Park in Allegany County and the other at Elms Environmental Education Center in St. Mary's County.

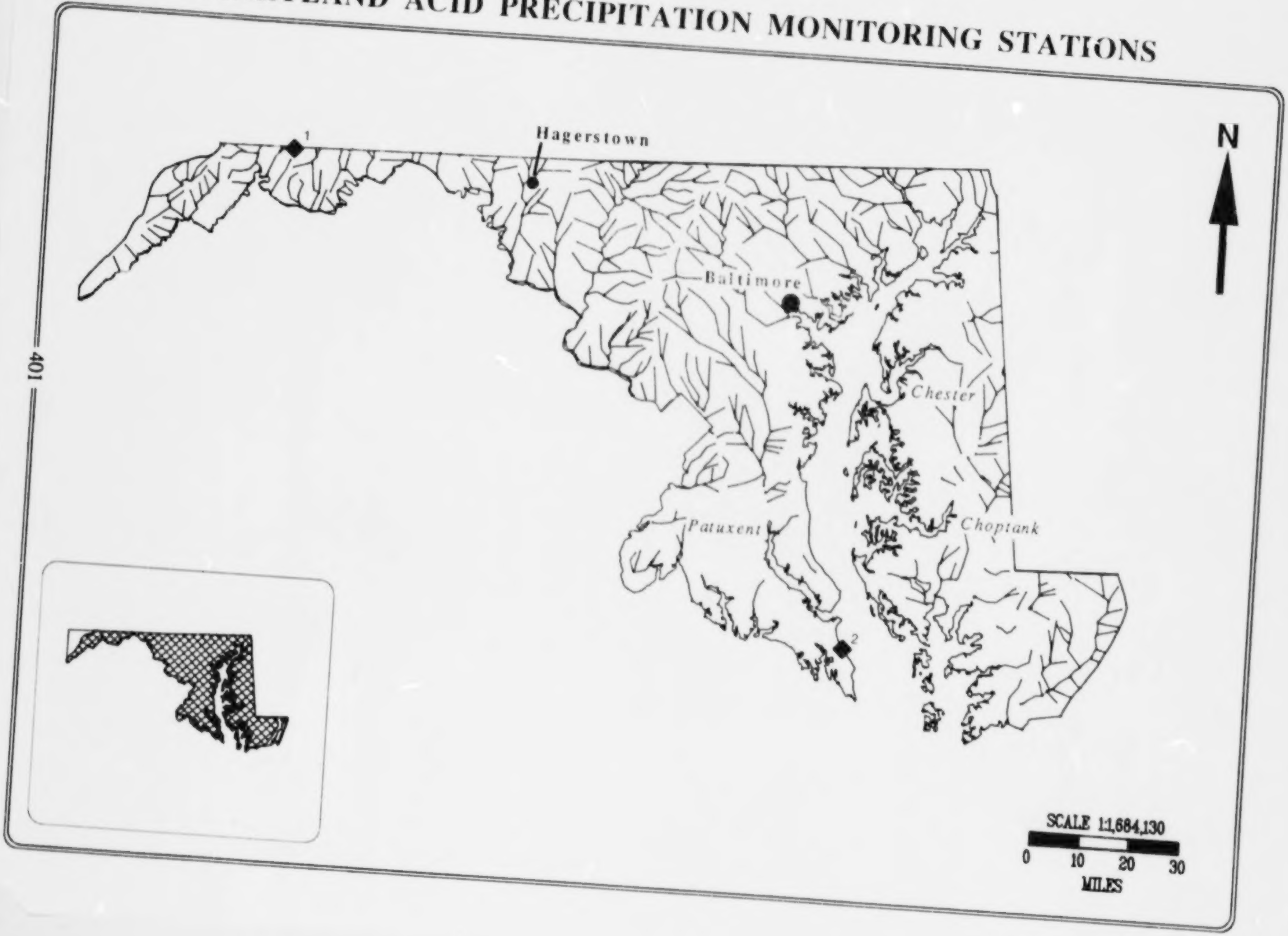
SAMPLE COLLECTION: Weekly (Tuesday to Tuesday) acid deposition samples are collected at two monitoring stations in Rocky Gap State Park in Allegany County and Elms Environmental Education Center in St. Mary's County. These samples are collected by an Aerochem Metrics wet/dry precipitation collector and returned to the laboratory for analysis.

PROGRAM INTEGRATION: The Maryland acid deposition monitoring stations are part of the EPA/State Acid Precipitation Network.

MARYLAND ACID PRECIPITATION MONITORING STATIONS

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
1	39 43 12	78 38 13	AFL	POTOMAC	NORTH BRANCH POTOMAC	2070002	ROCKY GAF STAT PARK
2	38 12 03	76 22 30	BFL	PATUXENT	PATUXENT	2060006	ELMS ENVIRONMENTAL EDUCATION UE

MARYLAND ACID PRECIPITATION MONITORING STATIONS



VIRGINIA ACID PRECIPITATION NETWORK

PROGRAM DESCRIPTION: The Virginia Acid Precipitation Network (VAPN) is designed to provide quality-assured acid precipitation data in a timely manner through weekly sampling from eight locations in the Commonwealth. Five of these are located in the Chesapeake Bay basin. The Virginia Department of Air Pollution Control coordinates the VAPN while the monitors are owned and operated by various companies or government offices. The acid deposition monitoring stations are part of the National Atmospheric Deposition Program (NADP).

PROGRAM OBJECTIVE: To monitor for any trends that may be occurring in acid precipitation in the Commonwealth of Virginia.

DATE INITIATED: January 1982

COORDINATING AGENCY:

Virginia Department of Air Pollution Control
Ninth Street Office Building, Room 801
P.O. Box 10089
Richmond, Virginia 23240

FUNDING AGENCY:

U.S. EPA Region III
Virginia Department of Air Pollution Control

PARTICIPATING AGENCIES:

Virginia Department of Air Pollution Control (VDAPC)
Virginia Polytechnic and State University (VPISU)
Philip Morris, Inc.(PMI)
Fairfax County Air Pollution Control Division (FCAPC)
Potomac Electric Power Company (PEPCO)
Virginia Power (VP)
Potomac Edison Company (PECO)
Appalachian Power Company (APC)
Chesapeake Corporation of Virginia (CCVA)
Union Camp Corporation (UC)

INVESTIGATORS:

Staff Meteorologist	Dan Salkovitz	VDAPC

PARAMETERS:

pH
Conductivity
Aluminum
Ammonium
Bromide
Calcium
Chloride
Iron
Lead
Magnesium
Manganese
Magnesium
Nitrate
Nitrite
Phosphate
Potassium
Sodium
Sulfate
Zinc

STATIONS: There are five stations in the Virginia portion of the Chesapeake Bay basin.

SAMPLE COLLECTION: Samples are collected in the morning on a weekly basis (Tuesday to Tuesday) and analyzed at the site for pH and conductivity. Collections are made with a Wet/Dry Deposition Collector. The collector is activated only during precipitation events. These samples are then sent to Virginia Polytechnic Institute and State University for laboratory analysis.

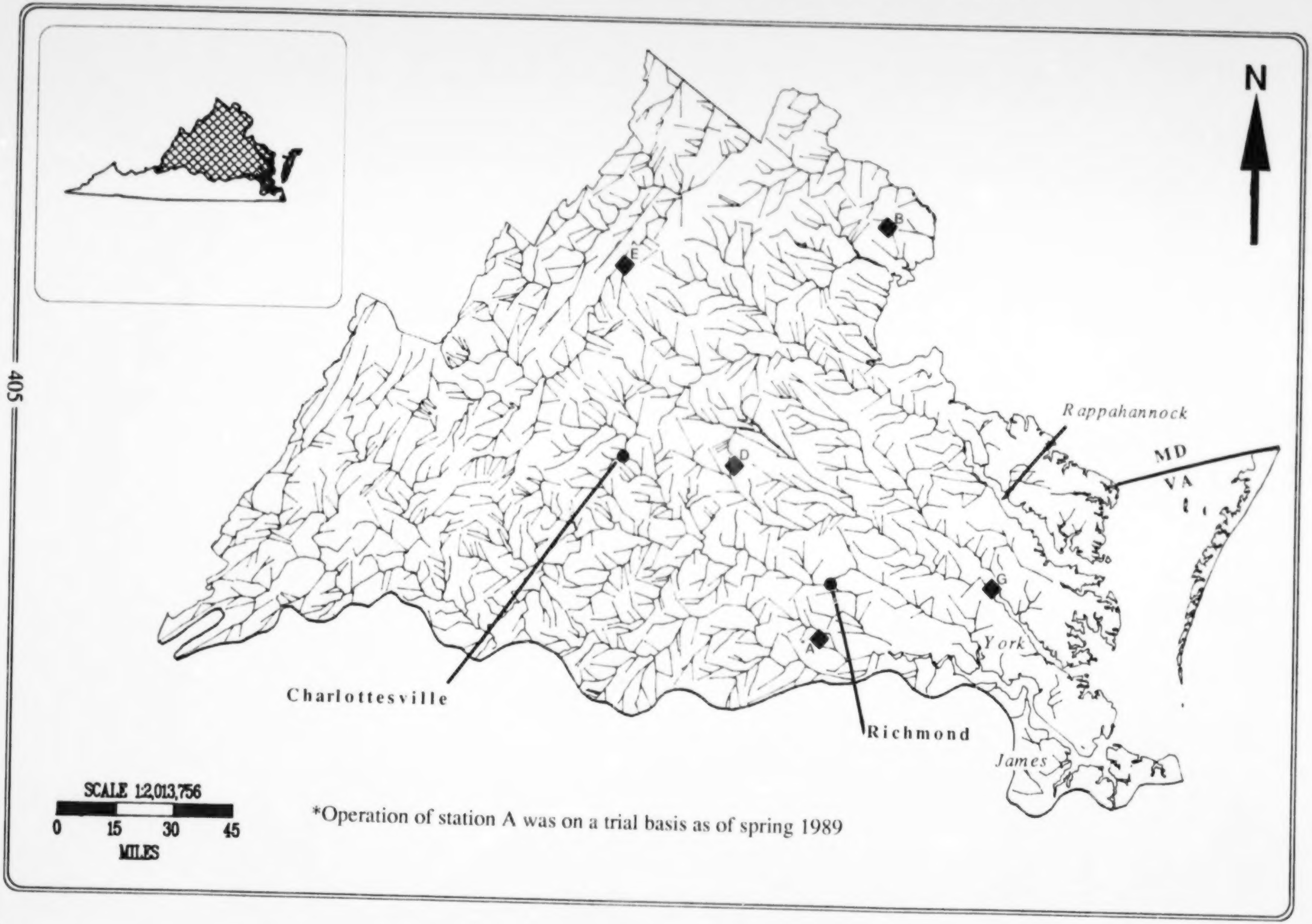
PROGRAM INTEGRATION: N/A

VIRGINIA ACID PRECIPITATION STATIONS

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
*A	37 18 00	77 18 00	BFL	JAMES	APPOMATTOX	2080207	APPOMATTOX RIVER, WEST OF COLON
B	38 59 00	77 18 00	AFL	POTOMAC	MIDDLE POTOMAC CATOCTIN	2070008	GREAT FALLS, FAIRFAX CO.
D	38 01 00	77 42 00	AFL	YORK	PAMUNKEY	2080106	N. ANNA LAKE, LOUISA CO.
E	38 40 00	78 27 00	AFL	POTOMAC	SOUTH FORK SHENANDOAH	2070005	CITY OF LURAY, PAGE CO.
G	37 31 00	76 46 00	BFL	YORK	YORK	2080107	WEST POINT, KING AND QUEEN CO.

*OPERATION OF STATION A WAS ON A TRIAL BASIS AS OF SPRING 1989

VIRGINIA ACID PRECIPITATION STATIONS



*Operation of station A was on a trial basis as of spring 1989

NOAA NWS SOLAR RADIATION NETWORK

PROGRAM DESCRIPTION: The NOAA National Weather Service Solar Radiation Network is part of a national network (SOLMET) of solar radiation monitoring stations. Data include hourly solar radiation, measured using pyranometers, and collateral meteorological information. There is one SOLMET station in the Chesapeake Bay basin at Sterling, Virginia with actual solar radiation measurements. There are also five stations in the basin for which hourly estimated solar radiation values are computed.

PROGRAM OBJECTIVE: To determine the amount and distribution of solar radiation received at the earth's surface for inclusion in a long term database.

DATE INITIATED: 1953

COORDINATING AGENCY:

National Oceanic and Atmospheric Administration
National Climatic Data Center
Federal Building
Asheville, North Carolina 28801

FUNDING AGENCY: National Oceanic and Atmospheric Administration

PARTICIPATING AGENCY: National Oceanic and Atmospheric Administration

INVESTIGATORS: N/A

PARAMETERS:

Radiation:
Direct
Diffuse
Net
Global
Engineering Corrected
Standard Year Corrected

Collateral Meteorological Parameters:
Sunshine
Sky conditions
Visibility
Weather type
Pressure
Temperature
Snow cover
Estimated radiation

STATIONS: There are six stations located in Sterling, Virginia, Baltimore, and the Patuxent Naval Air Station in Maryland, Harrisburg, and Avoca, Pennsylvania, and Binghamton, New York.

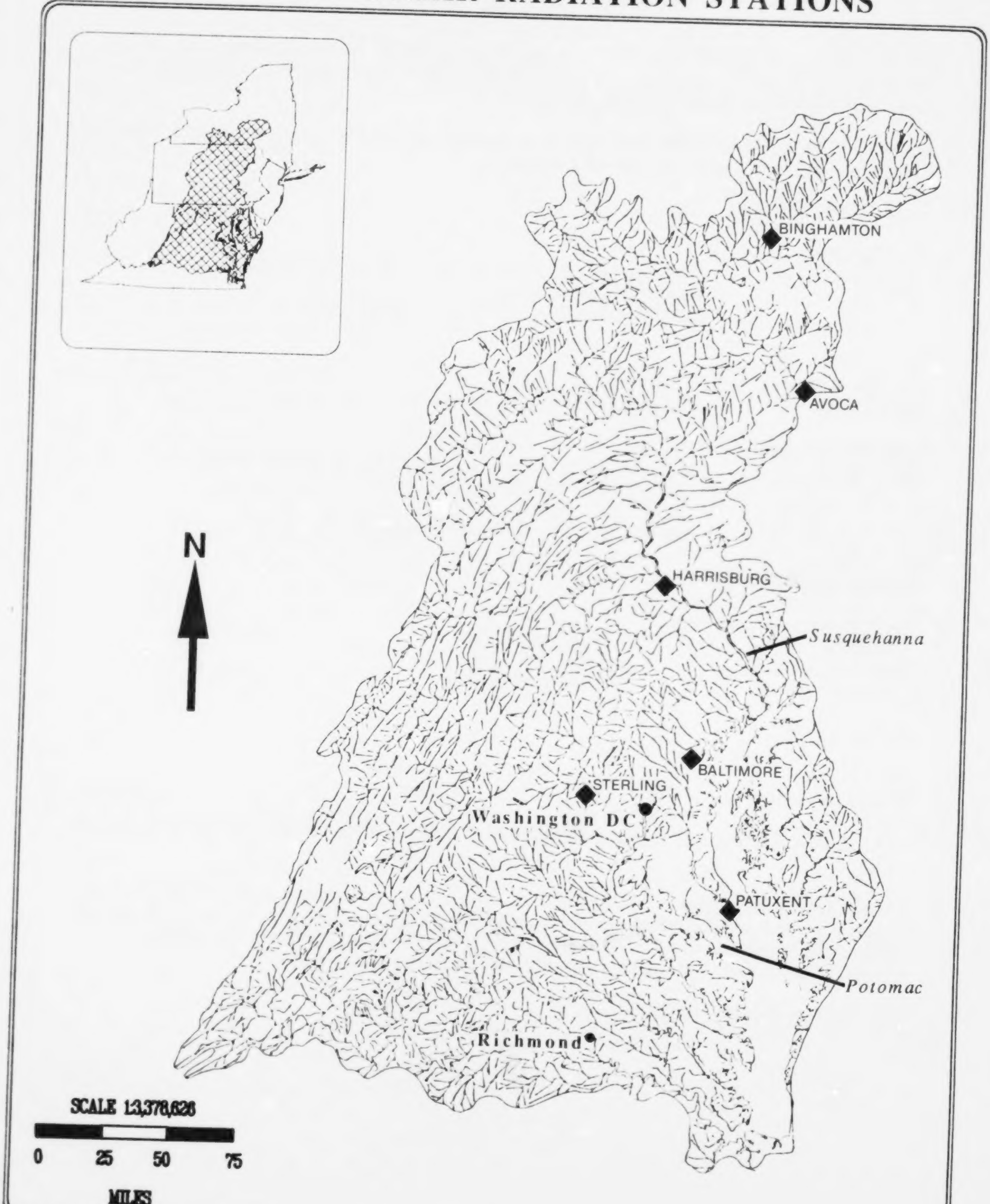
SAMPLE COLLECTION: Hourly values of parameters are recorded. At the Sterling, Virginia station, actual solar radiation measurements are taken in kilojoules per square meter with pyranometers. At all other stations within the Bay basin, estimated radiation values are developed from collateral meteorological data using a regression model.

PROGRAM INTEGRATION: These stations are part of a national network for solar insolation data.

NOAA NWS SOLAR RADIATION STATIONS

STATION NAME (S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
AVOCA	41 20 00	75 44 00	AFL	SUSQUEHANNA	UPPER SUSQUEHANNA-LACKAWANNA	2050107	AVOCA, PA
BALTIMORE	39 11 00	76 40 00	BFL	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	BALTIMORE, MD
BINGHAMTON	42 13 00	75 59 00	AFL	SUSQUEHANNA	WEGO-WAPPASENING	2050103	BINGHAMTON, NY
HARRISBURG	40 13 00	76 51 00	AFL	SUSQUEHANNA	LOWER SUSQUEHANNA-SWATARA	2050305	HARRISBURG, PA
PATUXENT	38 17 00	76 25 00	BFL	PATUXENT	PATUXENT	2060006	PATUXENT NAVAL AIR STATION, MD
STERLING	38 59 00	77 28 00	AFL	POTOMAC	MIDDLE POTOMAC CATOCTIN	2070008	STERLING, VA

NOAA NWS SOLAR RADIATION STATIONS



NATIONAL WATER LEVEL OBSERVATION NETWORK

PROGRAM DESCRIPTION: The National Water Level Observation Network consists of 205 permanent water level measuring stations, 13 of which are located around the Chesapeake Bay. Water levels are measured every six minutes.

PROGRAM OBJECTIVES: To collect, analyze and disseminate water level data for charting, extracting tides, engineering and scientific purposes.

DATE INITIATED: 1902

COORDINATING AGENCY:

National Oceanic and Atmospheric Administration
National Ocean Service
Office of Oceanography and Marine Assessment
Rockville, Maryland 20852

FUNDING AGENCY:

National Oceanic and Atmospheric Administration

PARTICIPATING AGENCIES:

National Oceanic and Atmospheric Administration (NOAA)
U.S. Army Corps of Engineers (COE)
University of Maryland (UMD)
Virginia Institute of Marine Science (VIMS)

INVESTIGATORS:

Chief, Physical Oceanography Division	John G. Hayes	NOAA
Chief, Sea and Lake Measurement	Philip C. Morris	NOAA

PARAMETERS:

Water Level
Water Temperature
Water Density
Tidal Datums

STATIONS: There are 13 stations located in Maryland and Virginia portions of the Chesapeake Bay.

SAMPLE COLLECTION: Water level is recorded every six minutes at each station, and tidal datums are computed and referenced to bench marks. Temperature and density observations are made on the average of five times a week at the Cambridge, Havre de Grace, Baltimore, Annapolis, Solomons, Kiptopeke, Lewisetta and Washington stations.

PROGRAM INTEGRATION: N/A

NOAA NATIONAL WATER LEVEL OBSERVATION STATIONS

STATION NAME(S)	LATITUDE DDMMSS	LONGITUDE DDMMSS	CBP SEGMENT	BASIN	SUB-BASIN	HUC	DESCRIPTION
8571890	38 34 24	76 04 06	ET-5	EASTERN SHORE	CHOPTANK	2060005	MD PORT AUTH. MARINE TERMINAL,
8573903	39 30 12	75 55 00	ET-2	EASTERN SHORE	CHESTER-SASSAFRAS	2060002	CORPS OF ENGINEERS WHARF, OLD T
8574070	39 32 12	76 05 24	CB-1	CHESBAY	UPPER CHESAPEAKE BAY	2060001	WHARF, TYDING MEMORIAL PK, HAVR
8574680	39 16 00	76 34 42	WT-5	WEST CHESAPEAKE	GUNPOWDER-PATAPSCO	2060003	CORPS OF ENGINEERS PIER, FORT M
8575512	38 59 00	76 28 48	BFL	WEST CHESAPEAKE	SEVERN	2060004	SANTEE PIER, US NAVAL ACADEMY,
8577330	38 19 00	76 27 06	LE-1	PATUXENT	PATUXENT	2060006	CBL PIER, SOLOMONS, MD
8594900	38 52 30	77 01 24	TF-2	POTOMAC	MIDDLE POTOMAC-ANACOSTIA-OCCOQUA	2070010	MUNICIPAL PIER #6TH AND WATER S
8632200	37 10 00	75 59 18	BFL	EASTERN SHORE	POCOMOKE	2060009	ABANDONED FERRY TERMINAL, CAPE
8635150	38 15 06	76 57 36	LE-2	POTOMAC	LOWER POTOMAC	2070011	MUNICIPAL PIER, TOWN OF COLONIA
8635750	37 59 42	76 27 54	LE-2	POTOMAC	LOWER POTOMAC	2070011	LEWISETTA MARINA AND GAS DOC, T
8637624	37 14 48	76 30 00	LE-4	YORK	YORK	2080107	VIMS RESEARCH PIER, GLOUCESTER
8638610	36 56 48	76 19 48	LE-5	JAMES	LOWER JAMES	2080206	PIER 2, US NAVAL BASE, NORFOLK,
8638863	36 58 00	76 06 48	CB-8	CHESBAY	LOWER CHESAPEAKE BAY	2080101	CHESAPEAKE BAY BRIDGE TUNNEL AU

NOAA NATIONAL WATER LEVEL OBSERVATION STATIONS